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THE TREATMENT OF EXTRAUTERINE PREGNACY.

By AIME PAUL HEINECK, M. D.,

Professor of Surgery, Chicago College of Medicine and Surgery; Surgeon to Rhodes Avenue, Jefferson Park and Frances Willard Hospitals, Chicago, Ill.

Extra-uterine gestation is of far more frequent occurrence than we believe. The operative treatment of this distinctly surgical condition can be discussed more intelligently after we have become familiar with the possible terminations of an ectopic pregnancy abandoned to the unassisted resources of nature.

An extra-uterine (tubal, ovarian or tubo-ovarian) pregnancy may go to term, and a living child be delivered, through channels created by the surgeon. In connection with this termination, one must keep in mind that extrauterine children frequently die in the first few days of life; many of them have lived only a few hours. They are frequently the subjects of deformity. The operation necessitating their removal from the maternal organism may prove fatal to them. It may prove fatal to the mother, either immediately, from surgical shock or of excessive hemorrhage, or remotely, from toxemia, septicemia, or pyemia.

The child may go to term, remain undelivered, and die, persisting in the maternal organism.

The fetus may die previous to term. Small embryos when expelled into the peritoneal cavity are promptly absorbed unless the placenta retains a firm attachment to the tube. Fetuses that die at an advanced state of development cannot be absorbed.

The ectopic fetus may: a. Putrefy. b. May become septic: 1. From communication with neighboring organs. 2. From contiguity with neighboring organs. c. May become converted into a friable fatty substance, then constituting what is known as an adipocere. d. May be transformed into a lithopedion, of which three chief types are distinguished. e. May become encysted by a connective tissue membrane, and remain quiescent for a time or permanently. The fetal cyst: 1. May be merely a mechanical inconvenience to the maternal organism. 2. May mechanically interfere with a subsequent intrauterine pregnancy; and may have to be removed to allow an intrauterine pregnancy to go to term. g. It may irritate contiguous organs, excite rectal tenesmus, vesical tenesmus, painful micturition, etc., or determine pressure symptoms; intestinal obstruction by compressing the intestines, urinary retention by compressing the bladder or ureters or cause various displacements of the uterus. It may cause errors in diagnosis. h. After the death of the fetus, the gestation-sac may be considered as a fetal cyst. After death, the liquor amnii is absorbed. No more is secreted. The cyst shrinks. The walls may, and frequently do, become adherent to surrounding organs or to surrounding tissues, viz., bladder, vagina, intestinal canal or abdominal wall, by either or by several of which channels the cyst may eventually, completely or incompletely, eliminate its decomposing contents; hence the cyst may rupture: 1. Into the bowel, by one or several openings; 2. Into the vagina; 3. Into the urinary bladder and the fetal bones and other cyst contents be expelled per urethram; 4. Into the rectum and the fetal bones and other cyst contents be expelled through the anus; 5. Into the uterus; 6. Into a cyst of other nature contained in the abdominal cavity; 7. Through the abdominal wall; 8. The fetal cyst may open and be eliminated through more than one channel in the same patient.

Rupture of the gestation-sac may take place before or after the death of the fetus. J. B. Sutton says that primary rupture takes

place in the majority of cases between the third and the tenth week. Rupture is one of the terminations of tubal pregnancy, be the pregnancy tubo-uterine, intramural, isthmic, or ampullary, etc. Ovarian pregnancies are subject to the same accident. Primary or secondary gestation-sacs may rupture. The gestation may be arrested by this accident, or it may continue uninterrupted, though changed in type. The rupture is associated with hemorrhage, slight or profuse, circumscribed or diffuse, belonging to one of the three following types, or to a combination of two or of all these types: a. Extra-tubal; b. Intra-tubal; c. Intramural. If the amniotic sac be ruptured and there be an outflow of the amniotic fluid, gestation will come to an end.

Extra-tubal rupture may occur: a. Into the peritoneal cavity; if the ovum does not perish, the pregnancy will be continued as a tubo-peritoneal or peritoneal pregnancy. b. Between the folds of the broad ligament. Pregnancy may here continue as an intra-ligamentary pregnancy, called by some authors a tubo-abdominal pregnancy. Intra-ligamentary pregnancy is far more infrequent than peritoneal pregnancy. c. An intra-mural rupture may lead secondarily to an intra-tubal or extra-tubal rupture. In intramural rupture, a thin layer of muscle tissue and peritoneum which separates the blood-sac from the peritoneal cavity. It may be compared to the condition that obtains when a saccular aneurysm ruptures and the blood escapes interstitially. Intra-tubal rupture may, if the abdominal opening of the tube be occluded, lead to an accumulation of blood in the cavity of the tube, viz., hematosalpinx. If the abdominal end of the tube be not occluded, the blood passes out of the tube into the peritoneal cavity, giving us a pelvic hematocele or a hemoperitoneum. The ovum, continuing to develop in the tube, may secondarily rupture, either into the peritoneal cavity or between the folds of the broad ligament, and gestation therein continue. If one variety of rupture fail to relieve the tension, the gestation-sac will probably rupture in another direction. The ovum may be carried out of the tube by the intra-tubal hemorrhage, giving us the condition of tubal abortion. The hemorrhage that attends and follows rupture usually requires immediate surgical interference.

We then have, as most alarming complications of tubal or ovarian ruptures, hemorrhages, small or large. The amount of blood discharged bears no relation to the extent of the rupture. Most

severe hemorrhages can occur from very small orifices. The rupture may be punctiform in size; may be a large tear; may be almost a complete rending of the tube. Rupture into the peritoneal cavity may lead to the formation of a hematocele, or to a flooding of the peritoneal cavity; the latter will cause the patient's death if the hemorrhage be not operatively arrested. There may be one severe and perhaps fatal intra-peritoneal hemorrhage, or there may be recurring hemorrhages, causing maternal death. Intra-peritoneal hemorrhage due to a ruptured ectopic gestation-sac has the same gravity as intra-abdominal hemorrhages due to other causes. The signs and symptoms of acute anemia are quickly produced.

If the extra-tubal rupture be between the folds of the broad ligament, the extravasation and accumulation of blood therein will separate these folds, and a pelvic hematoma will be produced. This hematoma is almost invariably one-sided, and, needless to say, is on the side of the rupture. In some cases, however, it may dissect forward between the uterus and bladder, or backward around the uterus beneath the peritoneum and extend to the opposite side. In those cases, where the tension within the hematoma is sufficiently great, rupture may take place into the peritoneal cavity, giving up the combined condition of both intra-peritoneal and extra-peritoneal hemorrhages. The same may occur in a hematosalpinx. The excessive tension may lead to extra-tubal rupture into the peritoneal cavity, or between the folds of the broad ligament, or in both directions. The hemorrhage associated with the rupture of a tubal or an ovarian gestation-sac may, in itself, prove fatal, may lead to formation of a pelvic hematoma, or to the formation of a pelvic hematocele. These encysted blood collections, hematomata or hematoceles, may be and frequently are partially or completely absorbed, may persist as fibrous bands or masses, may become infected and thus be the seat of a suppurative inflammation. If the inflammation remain circumscribed, an abscess is formed. If the inflammation spreads to, or if the abscess bursts into the peritoneal cavity, a circumscribed or diffuse suppurative peritonitis results. If the inflammation extends to the retro-peritoneal connective tissues, a cellulitis results, with all its accompanying dangers. The expulsion of the uterine decidua does not imply the death of the extra-uterine fetus.

The migration of the ovum into the abdominal cavity, through

the ostium abdominale, is known as tubal abortion (Bland Sutton). We may have tubal abortion. Tubal abortion may also lead to hematosalpinx. Usually, however, the blood escapes freely through the ostium abdominale into the cul-de-sac of Douglas, and either becomes encysted there, or escapes into the general peritoneal cavity.

In the early stages, abortion and rupture are due directly to the destructive action of the trophoblasts on the peritoneal and mucous surfaces. They can be directly due to increase of tension caused by hemorrhages from vessels, the walls of which have been destroyed by the ectoblastic cells. Tubal abortion may be complete, or may be incomplete. In the former, there is usually one attack of pain and weakness. In the incomplete form, we have repeated attacks of weakness. The abortion, if the amniotic sac remains intact, and if the ovum resists absorption, leads to a tubo-peritoneal or peritoneal pregnancy. If the villi or placental attachments are destroyed, the ovum being unable to form secondary attachments to other structures, dies.

TREATMENT.

We assert without the least hesitancy that this is as truly a surgical disease as appendicitis, and though, as in this disease, a clinical cure may at times be obtained by non-operative measures, it is not common for that clinical cure to be an anatomical cure. We maintain with emphasis that the most conservative treatment is that which saves the most human lives. In ectopic pregnancy, the viability of the child should not be considered, except as it endangers the life of the mother. The extra-uterine fetus is a parasite, a malignant new growth. We must destroy the fetus to save the mother. From the standpoint of treatment, we must consider: (1) Will the patient live (a) if she be abandoned to nature; (b) if she be operated on. 2 Are the dangers incident to opening the peritoneal cavity less than those of rupture of the gestation-sac? Without surgical aid, extra-uterine pregnancy always terminates fatally to the child, and frequently causes the mother's death.

Nature's tedious methods of relief and the many dangers to which the woman is obviously exposed during its occurrence justify surgical interference. Even the absorption of large uninfected collections of blood is far more prolonged than post-operative convalescence.

In the hands of the average operator, the only possible dangers to which the mother is exposed by the operative removal of the dead or live ectopic fetus are sepsis, hemorrhage and shock. The first can be avoided, the second can be largely controlled, and the third can be minimized and almost always overcome.

Some operators make use of the terms "primary laparotomy" and "secondary laparotomy." In the former, the operation is performed during the life of the fetus. It is in accord with the theory and practise of modern surgery. It attacks tissues while they are healthy, in preference to awaiting nature's blind efforts to improve conditions. Secondary laparotomy is the operation performed after the death of the fetus. Grandin and Jarman, in discussing operative treatment, say: "The almost absolute mortality-rate of the past has been converted into the almost certain recovery-rate of the present."

The diagnosis of ectopic gestation is in itself an imperative indication for operation. Lives can be saved by accurate diagnosis, prompt decision, and skillful operation. The profession in general has not exhibited that keenness and alertness toward extra-uterine pregnancy which has characterized its study of appendicitis in the past few years.

The first indication is to stop the hemorrhage. This indication is urgent. Hypodermic medication will not accomplish it. To stop this hemorrhage, you cannot depend upon the coagulability of the blood, upon the lessened force of cardiac action; upon such agents as heat, cold, styptics, and the like. You must open the abdomen; you must stop the hemorrhage at its source by ligating bleeding-points with aseptic absorbable ligature material, if you have it at hand; with antiseptic non-absorbable ligature material, if the former be not at hand.

Even in the absence of urgent symptoms, do not delay operation. As long as the embryo or fetus lives, the placenta increases daily in size, in vascularity, and in difficulty of removal. Furthermore, every day, the increasing size of the child and of the placenta adds to the danger of secondary rupture.

Having decided to operate, two pathways are open: 1. Through the vaginal wall. 2. Through the abdominal wall. In some difficult cases you may have to use both the abdominal and the vaginal routes. We recommend the vaginal route in only one condition, viz., pelvic abscess, when the gestation-sac has been converted

into a pelvic abscess, where suppuration has occurred in an intra-ligamentary fetal cyst, or in all intra-ligamentary hematoma. The opening of pelvic abscesses by way of the vagina is a safe and wise surgical procedure. The results are almost always very satisfactory. 3. In those cases where the fetal parts closely press against the vaginal wall. Even here it may be necessary to make use of the abdominal route, in addition to the vaginal route.

Under all other conditions, in the absence of a contra-indication, we recommend that the abdominal route be employed, because the operator is enabled: 1. To remedy at the same time coexisting pathological conditions, as hydrosalpinx, obliteration of the abdominal ostium of the unaffected tube, etc. 2. To arrest the hemorrhage with greater rapidity. 3. To secure a more complete and a more careful hemostasis. 4. To make a more direct examination to judge better the extent of damage, and thereby make a more accurate diagnosis. 5. To make a more conservative ablation of organs, and to have the operative field much better under control. 6. To more quickly come in contact with the condition, and to remove better and more completely the fetal sac and its contents. The separated ovum may ascend in the abdominal cavity, and it may be very difficult to find and remove it by the vaginal route. An abdominal incision enables the operator in case of an incorrect diagnosis to treat those conditions that simulate ectopic gestation. In operating, sight, as well as touch, is a very useful aid.

The greatest difficulty that we encounter near term, at term, or after term in operating for ectopic gestation, is connected with the removal of the placenta. A slight detachment of the placenta often results in alarming hemorrhage.

We make use of an incision about one-half inch to one side of the median line; the edges of the resulting wound are better adapted to our method of suturing the abdominal wall. Avoid cutting the epigastric vessels. Avoid cutting the urachus. Cutting into a patulous urachus is as significant as cutting into a urinary bladder. The cut must be repaired. Make use of the Trendelenburg position. The patient must be placed in this position gradually, not suddenly. The return to the horizontal posture must also be gradual. The Trendelenburg position facilitates the gravitation of the intestines towards the diaphragm. It permits a better view of the pelvic tissues or organs.

In all operations for extra-uterine gestation, the opposite tube and ovary should be carefully examined. In a few instances, the condition is bilateral. Extra-uterine pregnancy in some individuals has recurred.

Never make a needless sacrifice of tissues or organs. In the absence of a positive indication, such as a highly contracted pelvis, preventing the birth of a living child, etc., never remove the unaffected tube or ovary. As most extra-uterine pregnancies are tubal, early operation will permit the preservation of the ovary. The preservation of the ovaries is of benefit to the patient. Their removal causes the distressing symptoms of premature menopause.

The main difficulty in early and late operations is hemorrhage. The ideal treatment for hemorrhage incident to operations undertaken for the removal of ectopic gestation-sac is prophylaxis. Therefore, do not provoke uncontrollable hemorrhages. Proceed only after having well sized up the situation. Hemorrhage must be controlled by ligation or by compression of the bleeding points. A normal salt solution must not be given before the bleeding-points have been controlled or secured, either intra-venously, subcutaneously, or per rectum. Once the bleeding-points have been controlled, its use is of signal benefit. It increases the volume of the circulating fluid. Do not close up the abdomen until you are satisfied concerning the hemostasis. These hemorrhages are most profuse if the fetus is alive at time of operation.

If possible, avoid denuded peritoneal surfaces. They are possible avenues of infection. After a unilateral ablation of the adnexa, suture to each other the folds of the broad ligament, from the superior pelvic strait to the angle of the uterus. Peritonization—that is, the covering with peritoneum of all denuded surfaces—lessens adhesion formation. These adhesions may be attended with colicky and other pains; may cause intestinal obstruction. This peritonization lessens hemorrhage, and creates a barrier capable of limiting the extension of inflammatory processes.

In attempting to remove the fetal sac and its contents, be careful lest these efforts inflict much damage upon contiguous organs. Repair such damage before closing up the abdominal cavity.

The first condition, the treatment of which we will consider, is that of early unruptured ectopic pregnancy. In this case, there

are usually no adhesions. If adhesions be present, they are separated, as in all other intra-abdominal surgical interventions, with great care and by the same methods. The incision (about three inches in length) is carried through the different layers of the abdominal wall into the peritoneal cavity. The incision is slightly to one side of the median line. It is an infra-umbilical incision. After the patient has been gradually placed in the Trendelenburg position, the intestines and the general peritoneal cavity are walled off from the pelvic cavity by compresses of gauze. The first step is to locate the uterus.

Using the fundus of the uterus as a guide, and proceeding to the right and to the left, examine both tubes and both ovaries. Ectopic pregnancy is located with about as equal frequency on one side as on the other. Separate the gestation-sac from any adhesions, if such exist. Then remove the gestation-sac (which is usually tubal), as a whole, if possible, by a typical resection of the Fallopian tube involved. Suture the folds of the broad ligament together; leave no denuded peritoneal surfaces. Close up the peritoneal cavity. Post-operative treatment is that of uncomplicated laparotomy. If the pregnancy be ovarian in type, and be early and unruptured, do a typical ovariotomy. Accuracy and rapidity in operating are as essential in these cases as in any other intra-abdominal work.

If the gestation-sac is ruptured and hemorrhage has occurred or is occurring, after opening the abdominal cavity, put the patient in a Trendelenburg position. Wall off the general peritoneal cavity by gauze compresses. Again, immediately locate the fundus of the uterus. Determine on which side is the ruptured gestation-sac. Seize the uterus with the hand preferably or with a double tenaculum, thereby locating and keeping in view the most important landmark. When you have determined on which side the rupture is (it is usually tubal), apply a clamp at the uterine end of the tube. This will stop all further hemorrhage from the ovarian artery of that side. Apply another clamp immediately below the tube, compressing the folds of the broad ligament, but not injuring the ovary. Then remove the affected tube and the gestation-sac. Ligate all bleeding points, suture the folds of the broad ligament and the tubal surface of the uterine stump. Remove as expeditiously as you can the easily removable blood and blood-clots contained in the peritoneal and pelvic cavi-

ties. Remove the embryo if it can be found without prolonged search. Let there be no needless exposure, no needless traumatizing of the intestines. Undue exposure, undue handling of the intestines, intensifies operative shock, and may be followed by the aperistaltic form of ileus. Post-operative treatment is that of acute internal hemorrhage for which a laparotomy has been performed. Use normal saline solution secundum artem.

The most dangerous conditions, from the maternal standpoint, are those in which the fetus is alive; the hemorrhage then may be fatal. In these alarming cases of hemorrhage, some authors have suggested that the abdominal aorta be compressed. If the placenta be attached to the line of incision, the hemorrhage wili be profuse, but can be stopped by firm compression. In those cases in which the fetus is alive, we have two things to accomplish, and they must be accomplished with the preservation of the mother's life. The first thing to accomplish is the removal of a living child. The last and most important is the removal of the ovum; that is, the placenta, membranes, etc. We shall not often be called upon to operate in cases in which a living child is present. For a physician knowingly to abstain from operating in a case of extra-uterine pregnancy before it reaches term is, to say the least, injudicious. The best practise is to terminate these pregnancies early, or before the development of the ovum is much advanced.

Remove the fetus without disturbing the placenta. If the fetus is alive, the first thing to do after having opened the abdominal cavity and protected the peritoneal cavity by compresses from the outflow of amniotic fluid, is to remove the fetus, the umbilical cord having been ligated as in a normal pregnancy. Have the amniotic fluid escape externally as much as possible. Upon the maternal end of the umbilical cord a clamp is placed, the umbilical cord being cut either between the ligature and the clamp or between two clamps.

If the fetus has reached term or near term and is dead, there is some difference of opinion as to which operation is the preferable method—the immediate operation or the delayed operation—until the fetus has been dead for a month or longer. Our experience leads us to believe that the dangers attending delay are more than counterbalanced by the numerous dangers incident to the policy of expectancy, so that if the fetus is dead, be that death

recent or of some standing, we will, after thorough preparation, incise the abdominal wall. Exceptionally, our incision may carry us into the fetal sac. In such cases the peritoneal cavity will not be opened. This is liable to occur in some extra-peritoneal or broad ligament pregnancies. In this variety, the sac and placenta are entirely beneath the peritoneum. The latter may have been pushed up, even stripped for a considerable distance from the anterior abdominal wall. We will hastily remove the fetus without disturbing the placenta, ligating the umbilical cord near the placenta. Evacuate the contents of the sac, and then attempt to remove the sac and the placenta together, after having separated them from the surrounding structures to which they may be adherent. Usually, however, our incision carries us into the peritoneal cavity. In this instance, the patient is gradually placed in the Trendelenburg posture. The adherent intestines, omentum, and other viscera are separated, if feasible, from the sac, by tearing the adhesions apart or cutting them between ligatures. Hemorrhage must be controlled as you proceed. The general peritoneal cavity is protected by gauze compresses, which are numbered and counted, and then the incision is carried into the ovum. Occasionally, you may be able to remove the ovum as a whole. If the placenta is not safely removable, if the nature of the adhesions of the surrounding organs to the ovum is such that their separation would prove disastrous, content yourself with evacuating the fetal cyst and then suturing its walls to the abdominal wound. The sac must be packed daily until the placenta has been expelled and the sac-cavity obliterated. If the placenta is to be left behind, it is better that it be not disturbed and made to bleed.

The following methods have been employed:

1. The fetus, the umbilical cord, and the amniotic fluid have been removed. Everything else has been left in situ and the abdominal wall closed. This is an extremely risky experiment.

2. The fetus is removed, and more or less of the sac is resected. Drainage of the cavity of the sac is employed, and the placenta and sac are left for spontaneous expulsion. This is the most frequently employed procedure.

3. After the removal of the fetus, umbilical cord, and amniotic fluid, the placenta is removed in part—so much of it as is early separated—and the remainder is left to spontaneous absorption.

4. The placenta is left in situ after removing the fetus. Then, after the expiration of a certain time, the placenta is shelled out, when it is hoped that the blood-supply is spontaneously cut off.

5. The placenta and entire ovum are removed immediately. Ideal measure, if feasible.

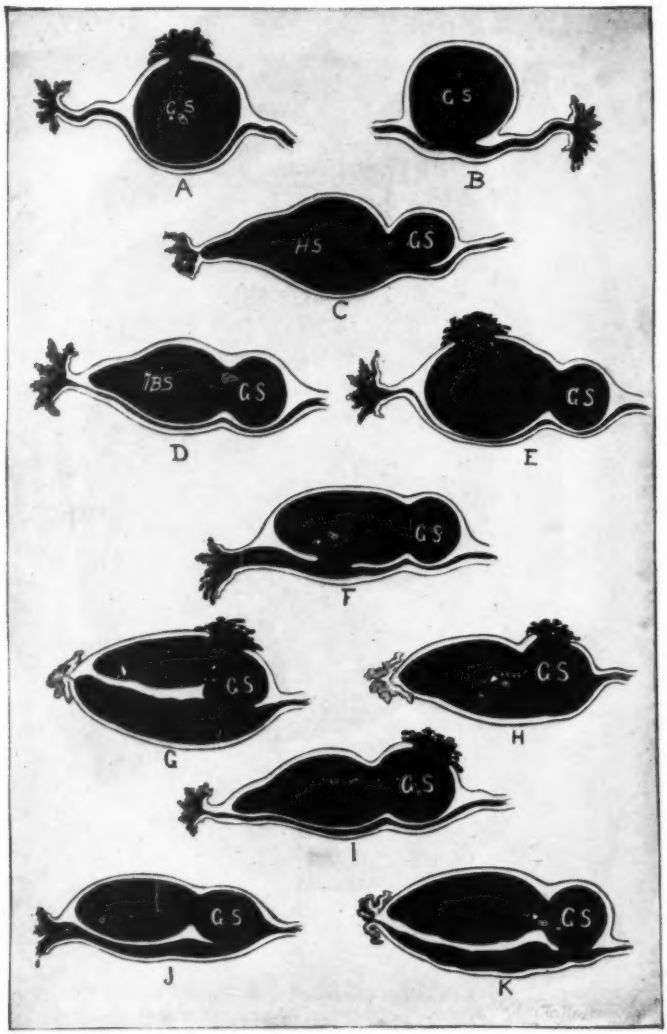
6. The placenta and gestation-sac are removed at once, likewise the neighboring organs, the uterus and ovaries, providing the hemorrhage cannot otherwise be arrested.

7. Preliminary ligature of the uterine and ovarian arteries of the side from which the placenta receives its blood-supply, followed by removal of the placenta.

There is no disputing the fact that the fetal sac and placenta should be removed completely if the procedure be consistent with the safety of the mother. The complete ablation of the ovum is theoretically the only perfect operation.

The method that we have had occasion to follow in those cases in which we feared to disturb the placenta is the following: After having incised the sac, we remove the fetus and other intra-ovulary contents, and ligate the umbilical cord close to its implantation, resect a portion of the sac-wall and sew what is left to the abdominal wound. This closes off the general peritoneal cavity. It leaves us a large pouch, which we pack tightly with strips of aseptic gauze. Many authors employ iodoform gauze instead. We endeavor to keep the cavity of this sac aseptic until all the placenta sloughs out of the wound. The elimination of the placenta by this method takes from twenty to fifty days.

In some cases, a vaginal drain has to be used, in addition to the abdominal drains. The first strips of gauze that are inserted in the fetal sac are made to serve the offices of a compress and of a tampon. They are used to check the bleeding. After the first dressings, the gauze strips are used more with drainage in view. After the fetal cyst has been sewed to the abdominal wall, or immediately previous, according to the exigencies of the case, the compresses that have been used to protect the general peritoneal cavity are removed. Sewing of the sac-wall to the abdominal wound shuts off all communication between the cyst and the peritoneal cavity. We use No. 3 catgut to suture the sac-wall to the abdominal wall. In some cases it will be found necessary to irrigate this pouch during the subsequent dressings, with some



ILLUSTRATING ARTICLE OF DR. A. P. HEINECK.

astringent aseptic or antiseptic solution. The abdominal wound is closed as in those cases in which a Mikulicz drain is employed. Post-operative treatment, symptomatic.

REFERENCES:

Cobb, F., The Management of the Grave Emergency Cases of Extra-Uterine Pregnancy, With a Study of 137 Cases of Tubal and Interstitial Pregnancy at Mass. Gen. Hosp., **Ann. Surg.**, Phila., 1912, vol. 56, p. 835.

Grimsdale, J. B., Case of Ovarian Pregnancy with Full Time Fœtus, **J. Obst. & Gyn.**, Brit. Emp., London, 1913, vol. 23, p. 115.

Purefoy, R. S., a Case of Tubal Pregnancy Attended with Previous Symptoms without Rupture, **Dublin J. M. Sc.**, 1913, vol. 135, p. 81.

Smith, W. S., Extra-Uterine Pregnancy. Operation three months after term; Recovery, **A. J. Obst.**, N. Y., 1913, vol. 87, p. 669.

Chaput, Grossesse tubaire à terme avec conservation de l'enfant pendant trois ans dans le ventre de la malade, **Bull. & Mem. Soc. Anat. de Paris**, 1913, vol. 88, p. 479.

Proust, de l'intervention opératoire dans les grossesses tubaires, **Gaz. des Hop.**, Paris, 1914, vol. 87, p. 85.

Hénault, L., Seize nouveaux cas de grossesse ectopique; quelques diagnostics differentiels, **Presse Med. Belges**, Bruxelles, 1914, vol. 66, p. 143.

Mauclaire, Kyste Fœtal suppuré, **Bull. & Mem. de la Soc. de Chirurgie de Paris**, 1915, vol. 46, p. 1106.

John Osborn Polak, Observations on Two Hundred and Twenty-seven Cases of Ectopic Pregnancy, **A. J. of Obst.**, 1915, vol. 71, p. 946-952.

Anderodias, de Boucand & Roche, Récidive de grossesse tubaire; hémorragie cataclysmique, **J. de Med. de Bordeaux**, 1913, vol. 43, p. 610.

Potherat, G., a propos de deux cas de grossesse extra-utérine rompue, **J. de Med. de Paris**, 1913, vol. 25, p. 762.

Weiss & Sencert, Un cas de grossesse intra—et extra-utérine combinée, **Bull. Soc. d'Obst. et de Gynéc. de Paris**, 1913, vol. 2, p. 648.

M. Péraire, Grossesse extra-utérine droite rompue avec coincidence d'un kyste ovarien du même côté, Paris Chirurgical, vol. 6, p. 793-795.

P. Mauclaire, Grossesse péritonéale; ablation par laparotomie; guérison, **Bull. & Mem. Soc. de Chir. de Paris**, 1915, vol. 41, p. 1106.

John Sampson, The Influence of Ectopic Pregnancy upon the Uterus with Special Reference to the Changes in its Blood-Supply and Uterine Bleeding, **Surgery, Gynecology & Obst.**, 1914, vol. 18, p. 587.

Smith, Richard, Final Results in 192 Patients Operated upon for Ectopic Pregnancy, **Surg., Gyn. & Obst.**, 1914, vol. 18, p. 684.

FIGURE I.

A. Extratubal rupture of gestation-sac. Escape of blood into peritoneal capity.

B. Intratubal rupture, with escape of blood into peritoneal cavity through ostium abdominal of Fallopian tube.

C. Intratubal rupture, with retention. Hematosalpinx.

D. Intramural rupture. A layer of muscular tissue intervenes between the blood-extravasate and lumen of tube.

E. Intramural rupture, with blood-sac opening into peritoneum.

F. Intramural rupture, with blood-sac opening into lumen of tube.

G. Combined intratubal and extratubal and intramural rupture.

H. Combined intratubal and extratubal rupture.

I. Combined intramural and extratubal rupture.

J. Combined intramural and intratubal rupture, with escape of blood into peritoneal cavity.

K. Combined intramural and intratubal rupture, with retention of blood into lumen of tube.

GS. Gestation-sac. HS. Hematosalpinx. IBS. Intramural blood-sac.

SOME OBSERVATIONS ON THE ETIOLOGY, SYPMTOMATOLOGY AND TREATMENT OF PELLAGRA.

By WM. LEE SECCOR, A. M., M. D.,
Kerrville-on-the-Guadalupe, Texas.

The etiology of pellagra has by no means been settled. The "Spoiled Maize" theory has been largely displaced by the "Unbalanced Diet" theory as advanced by Dr. Joseph Goldberger and his assistants. There are many observers, however, who are not yet satisfied in their minds as to the true cause of this increasingly prevalent disease.

While an unbalanced dietary or, more likely, the prolonged consumption of canned goods may have some influence on its etiology, from our observations we are of the opinion that lack of leguminous or nitrogenous foods in the dietary is not of itself the cause of pellagra. And we are quite sure that marked increase of these elements (milk, eggs, meat, beans, etc.) in the diet of pellagrins will not of itself cure the disease in all cases or even in a high percentage of cases.

Five cases of pellagra that have recently come under my observation had been under treatment for tuberculosis of the bowels for periods varying from six months to two years. These patients had made milk, raw eggs and rare beef their sheet anchor for months, yet their pellagrous symptoms continued to progress.

Two of my recent cases were the wives of well-to-do ranchmen. They lived on isolated ranches and ate bacon and "frijole" beans at least two hundred days out of the year.

In these seven cases the nitrogenous and leguminous foods were far in excess of normal. All of these patients, however, made extensive use of canned goods.

Five of my cases have occurred in families above the average, where good food in proper variety was always on the table; careful inquiry into the individual habits of the patients failed to disclose any marked error of diet.

A symptom that develops very early in some cases of pellagra is severe head pains. The pain may be in the temporal region, back of, or over one of the eyes, or it may extend over one side of the head, but in my cases it was usually unilateral and described by the patient as a pain, and not an ordinary headache.

Several of my cases have shown changes in the eye grounds and one developed vitreous opacities. Under treatment the eye grounds became normal, but the opacities remain.

The obscure origin and cause of pellagra has necessarily made its treatment, to a great extent, symptomatic and empirical. In the *Journal of the A. M. A.* of May 8, 1915, an article appeared which reported the results that Dr. E. E. Palmer and the writer had obtained in the treatment of pellagra by autoserotherapy at the Kerrville Sanitarium. Since this report was made I have treated a number of other cases, and always with the same excellent results.

We have recently received reports from various physicians who have used the autoserum treatment with success, not only in pellagra, but in other conditions where an increase in the antigenic function of the blood is desirable.

In our article in the *Journal of the A. M. A.*, we did not make our technic as clear as we should have done. So we published in the *Medical Record* of July 17 a detailed description of our method, under the title of "An Improved and Simplified Technic for Autoserotherapy."

We mentioned in the above articles that tonic doses of arsenic hasten the improvement under autoserotherapy. Arsenic has a marked action on the blood, producing a pronounced leukocytosis (Charteris, 1903). This condition of the blood serum produces a more potent exudate serum in the blister and gives more pronounced results.

In most of our cases we have found three drops of Fowler's solution after each meal amply sufficient. In a few cases, however, that did not respond readily to treatment, we have used ascending doses to ten drops after each meal.

We do not give the arsenic continuously, but only for a few days at a time during the course of the treatment. In some cases with pronounced anemia, we also use iron. For temporary relief of the burning in hands and feet, a strong solution of alum as a wash is quite effectual and, for the sore mouth, liquor antisepticus as a cleansing agent is very pleasing.

In the cases with marked nervous and mental symptoms, we use bromids for a few days until the serum treatment begins to show its effect and in some cases it is necessary to continue their use at intervals for several weeks. It is on these nervous and

mental symptoms, however, that the autoserum first shows its good effect.

In most of our cases one c. c. of the autoserum at intervals of one week proved perfectly satisfactory; in a few obstinate cases, however, larger doses and shorter intervals were used with benefit in all but two cases, where the symptoms were aggravated, and teh dosage was immediately dropped to 1 c. c. While many of our first cases were cured by autoserotherapy without paying any attention to diet, we now make it a rule to see that patients get a well-balanced ration, free from canned goods.

It is possible that the very rapid results that we have obtained in most of our cases have been partially due to change of climate, for nearly all of our cases are imported, coming from lower altitudes. The climate change, like arsenic, improves the blood and thus aids in the production of a more potent exudate serum.

We have had ample evidence that climate, diet or arsenic taken alone will not produce cures in any considerable number of cases. Furthermore, we have seen patients, who were either at a standstill or on the retrograde after prolonged treatment by sodium cacodylate, picric acid and diet, begin to improve promptly when placed on the autoserum treatment.

Translation.

AMERICAN LEISHMANIOSIS OF THE SKIN AND MUCOUS MEMBRANES.

By A. LAVERAN

Translated from the **Bulletin de la Societe de Medicine Exotique,** Nos. 5 and 6, 1915, by AUGUSTUS McSHANE, M. D., New Orleans.

HISTORICAL.—For a long time American physicians have observed, in several parts of South America, some diseases characterized by ulcerations of the skin and mucous membranes; but great confusion reigned in the chapter of ulcerative diseases, since it was impossible to base the diagnosis on a knowledge of the pathogenic agents. Different designations were given to the same disease appearing in different localities, and, on the other hand, the same name was applied to entirely different diseases that showed only a gross clinical resemblance. It can scarcely be doubted that American leishmaniosis has often been grouped with other different diseases under the names *buba* or *bouba*,

bouton de Bahia, and *Bauru ulcer* in Brazil; under the names of *uta* and *espundia* in Peru; of *pian-bois* in French Guiana; *forest-yaws* in British Guiana, and *boschyaws* in Dutch Guiana. Under the name of *buba,* cases of frambesia and blastomycosis have been confused with cases of leishmaniosis; under the name of *espundia,* cases of blastomycosis and leishmaniosis.

In order to escape from this chaos, we must abandon ancient names, at least for diseases of known pathogeny, and adopt names that express the nature of the disease. I will describe the disease that I am about to discuss, under the name of "American leishmaniosis of the skin and mucous membranes," or, to be brief, simply "American leishmaniosis."

A brief review of the works prior to 1909 will suffice.

In 1885, A. Cerqueira observed, in certain regions of Brazil, a dermatosis that he identified as "Biskra boil." In 1895, J. Moreira published some clinical reports that confirmed those of Cerqueira. In the same year, Adeodato gave a description of "Bahia boil," which he likens to the Oriental boil.

In 1895 and 1896, Breda, of Padua, described, under the name of *bouba brasiliana,* a disease of emigrants returning from Brazil, which should probably be identified as American leishmaniosis of the skin and mucous membranes. Breda thought that the disease was due to a bacillus, the existence of which was confirmed by Fiocca; this observer believed that he had succeeded in inoculating some small animals with a pure culture of the bacillus.

De Amicis also confirmed the observations made by Breda.

In 1901, Darier and de Christmas reported a case of *pian-bois* (wood-yaws) contracted in Guiana, and complicated with nodular lymphangitis, whence the authors inferred that *pian-bois* was a lymphangitis of a special nature.

E. Jeanselme, in his course of exotic dermatology, gives a brief description of *pian-bois,* which, however, he does not confound with Oriental button.

In 1909, several observers recognized that Baura ulcer (of Brazil) and pian-bois (of French Guiana) are suggestive of cutaneous leishmaniosis, and assimilate these dermatoses to Oriental sore.

A. Carini and W. Paranhos describe ulcers observed by them in laborers employed in the Bauru zone, in railway construction in northwest Brazil; smears made with shreds of tissue taken

from the ulcers showed in several cases Leishman bodies of the type *L. tropica,* and the authors identified the ulcer of Bauru as Oriental sore.

A. Lindenberg gives a good description of Bauru ulcer. He found Leishman bodies in these ulcers, which he identified as Oriental sore, and he proposed for it the name of "Ulcerative leishmaniosis."

Again, in 1909, Nattan-Larrier, Touin and Heckenroth published the history of a patient who had contracted an ulcer (forest-yaws) following a voyage to the neighborhood of Kourou (French Guiana); some Leishman bodies of the type *L. tropica* were found in small numbers in this case, as in the cases of Bauru ulcer studied by Carini, Paranhos and Lindenberg.

In 1910, Rao called attention to the existence of *Leishmania* ulcers in Manaos, State of Amazonas (Brazil), a region in which this disease had not previously been observed.

Pedroso and P. Dias da Silva succeeded in obtaining pure cultures of Leishman-bodies from Bauru ulcer in Novy-McNeal medium, and they reported a case that had seventy-two ulcers.

Bueno de Miranda described several cases of Bauru ulcer complicated with ulceration of the nasal mucosa and the tongue.

A. de Matta published five cases of ulcerative leishmaniosis observed by him at Manaos.

The localizations of the ulcers on the mucosæ, which are so characteristic of American leishmaniosis, were the subject of important works in 1911 and 1912.

A. Splendore called attention to the ulcerative affections of the nasal and buccal mucosæ common in Brazil; among these affections, according to him, some constitute a new form of leishmaniosis, whilst others are blastomycoses.

A. Carini published a typical case of leishmaniosis of oro-rhino-pharyngeal mucosa in a Brazilian who had contracted the disease in the State of San Paulo.

Escomel described, in 1911, a disease characterized by slow, progressive ulceration of the oro-rhino-pharyngeal mucosa, which is known in Peru under the name of *espundia.*

In a slice of palatine mucosa and in smears from patients attacked with espndia (sent by Dr. Escomel), Laveran and Nattan-Larrier found Leishman-bodies which seemed to differ

slightly from the *L. tropica,* and which they propose to designate under the name of *L. tropica,* variety *Americana.*

As a result of these observations, it follows that espundia is a leishmaniosis; however, it also appears, from a new communication of Dr. Escomel, that, under the name of espundia, there is confounded in Peru, as under the name of buba in Brazil, a blastomycosis with ulcerative leishmaniosis.

Darling and Connor observed, in the Canal Zone, several cases of cutaneous ulcers which they compared with Oriental sore.

Werner describes a case of cutaneous leishmaniosis at Rio Janeiro, complicated with lymphangitis, and Piraja da Silva published new observations of this disease at Bahia.

In 1912, several cases of leishmaniosis of the skin and mucosæ were reported to the Brazilian Society of Dermatology.

Flu examined at Paramaribo (Dutch Guiana) some patients attacked by a dermatosis known in that region under the name of *boshyaws,* or *boessi yassi,* and found that smears made from the scrapings from the edges of the ulcers contained Leishman-types.

Seidelin states that in Yucatan the laborers employed in gathering gum-chicle are often attacked by ulcers situated on the ear, whence the name "ear-ulcer of the chicleros;" in four cases out of six, Leishman-bodies were found in these ulcers.

In 1913 and 1914, observations relative to American leishmaniosis multiplied. Rabella, Terra, Terra and de Freitas, Crissiuma, Gorga, Padesca published new cases of leishmaniosis of the skin and mucosæ in the regions of Bahia, Rio Janeiro and Upper Amazon.

Bates describes the fifth case of ulcerative leishmaniosis observed in the hospital of Ancon (Canal Zone); the patient had ulcers on the helix of both ears, and on the nasal mucosa.

D. E. Andersen, Velez, R. P. Strong and his co-workers, Rebagliati, Monge, studied the uta of Peru, and showed that it was usually an ulcerative leishmaniosis.

Migone and Lindsay gave good descriptions of leishmaniosis in Paraguay, where it is commonly known as buba. Also, Migone reported a case of kala-azar observed at Asuncion (Paraguay), the only case known thus far.

We see from the foregoing that the existence of ulcerative leishmaniosis had been ascertained in French and Dutch Guiana.

Minett and Field, who had previously studied *forest yaws* in British Guiana, also succeeded in finding Leishman-bodies in the ulcerations.

CLINICAL FORMS—SYMPTOMS—COMPLICATIONS.

The disease is characterized at times by one or several ulcers, at others by ulceration of the mucosa of the nose, mouth, and pharynx, which are always preceded by cutaneous ulcerations. For convenience of description, the following forms may be distinguished: 1, Cutaneous leishmaniosis; 2, mucous leishmaniosis.

A—Cutaneous Leishmaniosis.—The disease attacks chiefly the exposed parts of the body; legs, forearms, face, ears; sometimes on the covered parts: chest, buttocks. It begins by one or two patches of itching erythema that seem to be produced by the bites of insects. At the end of two or three days, pustules appear on the erythematous patches, which soon burst and give rise to a small ulceration; the viscid liquid that comes from the surface of the ulcers hardens and forms a dark brown crust.

The ulcer is generally rounded or oval; it grows in size gradually until it becomes as large as a 50-centimes piece, or a one, two or five-franc piece; some ulcers of irregular shape cover the entire dorsum of the foot, or a large part of the ear, or even the circumference of an arm or leg.

The edges are sharply prominent, and of a violet color; the surrounding skin is red, œdematous, not very painful on pressure.

The base of the ulcer is generally covered with a brownish crust of varying thickness, under which is found a small amount of fetid sero-pus, and a red, granulating surface, that bleeds easily.

The amount of secretion varies. Migone says that some ulcers, with raised-up floors, fleshy and oozing, are not covered with crusts: that is the lardaceous moist buba; other ulcers become dry, scabby, excavated, with scanty secretion: that is dry buba.

The corresponding lymphatic glands are painful at first; the pain soon disappears, but the glands never return to their normal size.

The ulcers are sometimes complicated by suppuration of the lymph-nodes.

Generally, the ulcers are few in number in the same patient;

often there are only two or three; but sometimes there are twenty, or even more; the sores, of varying sizes, are scattered over the body.

The general symptoms are fever in the evening, pains in the joints, headache or lumbar pains. The symptoms are usually not well marked, or are even absent.

Progress is slow; the ulcers last for months, and even for one or two years.

The cases usually get well unless the mucous membranes become involved. After an average duration of seven or eight months, the ulcers begin to cicatrize, the edges become smoothed off, and the cicatricial tissue gradually extends from the circumference to the center. Cicatrization is frequently interrupted by relapses.

The scars are characteristic: their edges are stellate, and the central part is parchment-like and discolored.

Some ulcers leave mutilating scars when they are located on the face; when the ear is involved, the pinna may be partially destroyed; shrinking cicatrices of the eyelids or nostrils may also cause disagreeable and troublesome deformities in a functional way.

B—LEISHMANIOSIS OF THE MUCOUS MEMBRANES.—As a general rule, ulcerations of the mucous membranes develop only after the cutaneous lesions; Terra and de Freitas, Crissiuma, however, admit that leishmaniosis may originate in the nasal mucosa; the cutaneous ulcers are often cicatrized when the mucous ulcerations begin; these latter are not the result of the propagation of an ulcer of the lips or the wing of the nose to the neighboring mucosæ, such as frequently occurs in Oriental sore.

Carini, Escomel, Splendore, Migone communicated to the *Société de Pathologie Exotique* some excellent works on naso-bucco-pharyngeal leishmaniosis; I will borrow freely from these papers, particularly Escomel's.

CLINICAL FORMS—SYMPTOMS, COMPLICATIONS.

"The disease," says Escomel, "commences by an atonic ulcer, developing from a little papule (bouton), which sometimes attains a lengths of ten centimeters or more; the seat of the ulcer is on the forearm, legs, neck, chest, back or shoulders, more rarely on the face or hands. That is the espundic chancre (chancre espundique). This granular ulcer, with rounded edges, bumpy pseudo-epithelioid surface, secretes a thick pus, which is the source of the scabs which

may persist even for years in spite of the most energetic treatment.

"After a variable length of time the ulcer heals, leaving a well-marked scar; after a time, sometimes years, the lesions appear on the nasal and buccal mucosæ. During this time the general condition of the patient does not seem to suffer.

"The lesions usually begin in the columella of the nose, and are accompanied by a chronic coryza; more rarely they begin in the mouth (vault of the palate); the ulcerations extend to the nasal fossæ, velum palati, tonsils, pharynx, larynx, and even to the lobes of the ears and the face. The course of the disease may run for fifteen, twenty, thirty years, or even longer; sometimes a complication carries off the patient, who leads a miserable life on account of his repulsive aspect and fetid breath.

"The spreading of the nose due to the destruction of the septum is characteristic, and enables one to make a diagnosis at sight.

"When the mouth is attacked, the aspect of the palatine vault is typical. The mucous membrane is thickened, oozing, granular, traversed by grooves of varying depth which separates the lobes and lobules; among these grooves, two are quite constant in their occurrence, crossing each other near the median line, one of them extending from behind the incisior teeth toward the velum palati; and the other extending transversely from one molar region to the other. I have called these characteristic grooves the **palatine cross of espundia.**

"I have seen a patient die of uncomplicated espundia, which is very rare; he succumbed to a cachexia similar to that of cancer, with amyloid degeneration of the viscera; the patient had had his initial lesion on the forearm thirty-two years before. The lesions extended down to the trachea and œsophagus; the stomach and bronchi were not involved."

Laveran and Nattan-Larrier found Leishman-bodies in the mucosæ of several of Escomel's patients.

The description given by Migone agrees with Escomel's.

The mucous phase begins, in many patients, eight or nine months after the cutaneous phase; the cutaneous ulcerations are often healed when the physician is first called in to see the patient; but the characteristic scars are found, usually on the legs or arms.

The nasal mucosa, which is usually the first to be attacked, is red and infiltrated, and is the seat of sero-purulent catarrh; yellowish crusts form on the nasal system, which ulcerates and becomes perforated; nasal respiration is difficult.

The infiltration gradually extends, the velum palati becomes red, the uvula thickened; the tonsils, pillars of the fauces, and

the pharynx become involved, which renders deglutition difficult and painful.

The patient coughs; the voice is husky, showing that the larynx is involved.

Then the nasal septum is destroyed, the nose sinks in; the upper lip is red, thickened, œdematous. The disfigured face is hideous.

In the last stage, the buccal mucosa is transformed into a thick, granular tissue; the velum palati, the uvula, the tonsils are mingled together in a mass of friable lardaceous tissue; sometimes the faucial isthmus is almost obliterated; the patient breathes and swallows with difficulty; the voice is almost extinct. The disease does not invade the bones or the tongue.

The duration is always long. The patients recover with more or less disfigurement, or else they succumb either to consumption or to some complication, such as bronchitis.

Pathological Anatomy.

A—CUTANEOUS ULCERS.—Nattan-Larrier, Touin and Heckenroth, who examined histological sections of a cutaneous ulcer (*pian-bois, forest-yaws*) of French Guiana, give the following description of the lesion: A granuloma consisting of lymphocytes and mononuclears infiltrating the elements of the derma, abundant giant-cells, never forming the center of a leucocytic follicle with a central necrosis, such as we find in tubercles. Rich vascular network; arterioles and venules often the seat of a vegetative endovascularitis. Leishman-bodies not very numerous, lying free in the œdema-serum or enclosed in the connective-tissue cells, more rarely in the mononuclears; it is at the center of the granuloma that the parasites are most numerous. The authors conclude that these alterations differ sensibly from those of Oriental sore.

Laveran and Nattan-Larrier, who examined smears made by Dr. Escomel from the scrapings or from the exudate of cutaneous ulcers of patients suffering from espundia, found Leishman-bodies in greater or less numbers. The following examinations refer to a patient who had an ulcer on the ear (initial lesions), and several cutaneous ulcers on different parts of the body, and ulcerations of the naso-bucco-pharyngeal mucosa:

"Ear-lesion—This smear, containing many red blood corpuscles, contains numerous polynuclear leucocytes, large and medium mono-

nuclears, fibrin-filaments, few bacteria. The Leishman bodies occur either in a free state or enclosed in the macrophages. In both forms the bodies have distinct contours and stain well. Their form is more often round than oval; their maximum diameter is 3 or 4 microns. The nucleus is flattened, and lies close to the cell-wall; it measures from 1½ to 2 microns in length, and 3-10 to ½ micron in width. The centrosome occupies a variable position in relation to the nucleus; it is quite often in contact with it. The centrosome is usually rod-shaped, more rarely cocciform.

"Nasal lesion—The smear is poor in red blood-corpuscles; it consists of mucus and serum in which mononuclears are abundant (macrophages, large and medium mononuclears); bacteria, cocci and bacilli form thick masses here and there; fibrin-filaments are rare. Whether contained in the white or red blood-corpuscles, the Leishman bodies present almost invariably the characters we have described in connection with smears from the ears."

It is easier to demonstrate the Leishman-bodies in smears than in sections, provided that the scrapings from the floor of the ulcer be examined, and not merely the pus.

Franchini, who studied the alterations of cutaneous leishmaniosis in a patient who had contracted the disease in Brazil, gives a description which differs a little from the foregoing. The changes are not the same at the beginning, in the period of stasis, and at the end of the ulcer. It is not surprising that there is not perfect accord among the descriptions of different authors. According to Franchini, the Leishman-bodies are well seen in sections stained with toluidine or iron-hematoxylon, after fixation in sublimate-solution or Schaudinn's liquid. The parasites, few in number, are either free or endocellular, and are found near the surface as well as deeper down. Leishman-bodies have been found in the scrapings from the ulcerations and in the serosity from the suppurating granuloma.

Migone, in Paraguay, practised biopsia of several incipient and old granulomas. In the initial period, the œdematous derma is infiltrated with mono- and polynuclears. The Malpighian papillæ penetrate the derma. Little by little the infiltration becomes thicker, and an inflammatory nodule is started.

The epidermis is destroyed and an ulcer forms.

The blood and lymph capillaries are attacked by the inflammation, and the endothelial cells sometimes contain *Leishmania.*

According to Mariani, the anatomical alterations of American leishmaniosis are identical with those of Oriental sore. The pro-

cessus is the same: alterations at the primary dermal sore consisting in an intense vascular and fibro-plastic reaction, with accumulation of infiltrating elements. Lymphocytes, large mononuclears, endothelial cells, and giant-cells constitute the essential elements of the infiltration, in varying proportions according to the stage of the ulceration. The epidermis reacts at first by more or less hyperplasia; then ensues a period of involution and ulceration. The hypodermis is constantly involved. Cure takes place by a substitution of a young connective-tissue for the degenerated tissues.

B—ULCERATIONS OF THE MUCOSAE.—According to Escomel, the mucous lesion consists of a granuloma of embryonal cells with the trabeculæ of connective-tissue and blood-vessels. There are no giant-cells, nor arteritis, nor foci of softening.

In 1912, Dr. Escomel sent me a piece of mucosa of the palatine vault, removed with the galvano-cautery from a case of espundia of fifteen years' standing; the following gives the results of the examination by Nattan-Larrier and myself:

"The lesion consists essentially of a diffuse leucocytic infiltration of the corium of the mucosa, with distension of the blood and lymph capillaries, and disappearance of the epithelial layer, which was replaced by a fibrino-leucocytic false membrane.

"The infiltration of the corium extends through its entire thickness; more marked in certain regions than in others, it never shows a nodular disposition, and does not possess a systematic distribution with regard to the vessels or the glands. The afflux of leucocytes is not more marked in the superficial layers than in the deeper ones, and is equally the same at the center of the lesion as at the edges. The elements thus distributed are mononuclears of medium size, with a round central nucleus, and rich in chromatin, surrounded by a regular protoplasmic border, apparently normal; besides these mononuclears, in various proportions, but always numerous, there are plasmazellen, recognizable by the character of their nuclei and the reaction of their protoplasm; finally, here and there, macrophages are seen; these cells, more numerous at the edges of the lesion, never form confluent masses, and do not possess dimensions as great as the elements of the same type observed in sections of Oriental sore. The polynuclears are rare in the deeper layers of the infiltrated zone; they are scarcely seen at all except at the surface of the corium or in the neighborhood of the ulcerations. The stroma of the granuloma is formed of a disorganized connective-tissue, the fibrillæ of which, feebly stainable, occur in thin sinuous bands between the leucocytic elements; the connective tissue cells are numerous, voluminous, and their nuclei, which stain well, are

always easy of identification. The blood-capillaries, in the superficial region of the corium and in its deep part are much distended; their lumina, bounded by swollen endothelium, are filled with red blood-corpuscles mixed with a considerable number of polynuclear leucocytes. In the middle zone of the lesion, the blood vessels, crushed in by the surrounding leucocytic infiltration, show only a narrow lumen. It is always easy to distinguish the lymphatic vessels, for they are found throughout the lesion at the surface as well as in the deeper part.

"The ulcerative process can easily be understood. The epithelial layer, resting upon the infiltrated and swollen corium, becomes distended and thinned. The cells of the basic layer lose their distribution in palisades, and are dissociated by the afflux of polynuclear leucocytes. The epithelial cells break down in vacuoles and necrose; in the intercellular spaces and in the lacunæ polynuclears accumulate, sometimes forming conglomerate heaps. The epithelium soon becomes represented only by branching cells intercalated between the white blood-corpuscles, and by a thin superficial layer, the elongated, heaped-up, lamellated, and faintly colorable elements of which end by disappearing altogether. The surface of the ulceration is then formed by a fibrinous network, composed of fibrillæ and cut-out blocks, in which are enclosed altered polynuclears, some mononuclears, and a small number of red corpuscles. The false membrane thus formed is full of bacteria.

"Histological sections show only a small number of **Leishmania**; they are found almost exclusively in the superficial and middle parts of the thickened corium, at the edges of the ulceration. The majority of the invaded cells are medium-sized mononuclears. Often they contain only one or two **Leishmania**; exceptionally they contain more than six. At some points, the parasites seem to be lodged in the protoplasm of a swollen connective-tissue cell. The polynuclear leucocytes are rarely attacked by the parasites; notwithstanding this, we have found elements of this type in the lumen of lymphatics, and in the spaces between the epithelial cells. We have never seen **Leishmania** in the false membrane."

On the other hand, the examination of smears made from ulcerations in the throat of another patient of Dr. Escomel, likewise suffering from espundia, gave us the following results:

"In the spaces between the fibrin-filaments there are still finer threads, red blood-corpuscles, frayed-out nuclei of disintegrated leucocytes, rare macrophages and intact polynuclears; finally, thick masses of bacteria of all kinds. Free **Leishmania** are rare; they are situated on the fibrin-filaments, or in the neighborhood of the altered nuclei. The invaded cells are macrophages, and rarely polynuclear leucocytes; the **Leishmania** are there either single or multiple, never, however, exceeding four in number. The intracellular **Leishmania** are often of unequal dimensions, alongside of elements four micra in diameter or more, we find others not more than two

and a half micra. Their form is always round, and their outlines clear. Leishmania possessing a rounded or oval nucleus are not rare. We have often seen, both in the free state and as inclusions in the leucocytes, multiplication-forms presenting a rounded form, having a diameter of 7½ to 8 micra, and showing, close to the cell-wall, two, or even three, cup-shaped nuclei."

The older mucous lesions are characterized, according to Migone, by a diffuse and abundant infiltration; the corium has almost disappeared, and there remain only a few scattered islands of epithelium; the newly-formed blood-vessels and lymphaties exist in greater or less number.

The search for *Leishmania* in old lesions is often difficult.

Leishmania are not found in the blood of the patients (Migone), and it is doubtful if cutaneous and mucous leishmaniosis can become complicated with internal leishmaniosis. Only one case of kala-azar has been observed in South America. The patient was an Italian of 47 years, who seemed to have contracted the disease in 1910, when he worked on the railroad from Sao Paulo to Corumba, in Matto Grosso; that is to say, in a region where leishmaniosis is endemic; Migone, who treated the patient in Asuncion (Paraguay), found a few Leishmania in the blood, and many more in material drawn by puncture from the liver and spleen. The patient did not present any cutaneous lesion; the *Leishmania* were a little larger than those of bouba. The interpretation of this unique case is difficult; in any event, the attention of the physicians of South America should be directed to the possibility of finding cases of internal leishmaniosis in regions where cutaneous and mucous leishmaniosis is endemic.

PATHOGENIC AGENT.—The *Leishmania* which is the causative agent in American leishmaniosis shows a great morphological resemblance to the *Leishmania tropica* of Oriental boil (*bouton*); like the latter, it is found in the tissues either free or, more frequently, as inclusions in the anatomical elements; the dimensions of the two parasites are nearly the same; both show, alongside the nucleus properly so called, a secondary rod-shaped nucleus or centrosome; both develop flagella in appropriate culture-media.

Some observers have noticed slight differences between *Leishmania americana* and *L. tropica*.

Laveran and Nattan-Larrier have called attention to a peculiarity presented by the Leshmanias found by them in the lesions of espundia. The nuclei, instead of being round or oval, as is

usually the case in *L. tropica*, were elongated and as though flattened along the cell-wall. Subsequent researches have shown this disposition of the nuclei is neither constant in the *Leishmania americana*, nor confined to this parasite.

Wenyon has found, among the Leishmanias of Bagdad sore, flattened elements, joined to the cell-wall, apparently identical with those seen by Laveran and Nattan-Larrier in espundia.

Splendore notes that the protoplasm of the Leishmanias of bouba are more deeply stained with the Giemsa than that of *L. tropica*, and that, in cultures of the former parasites, we find longer forms than in cultures of other Leishmanias, that of the flagella sometimes reaching 40 to 50 micra; he concludes from his researches that the Leishmania in question constitutes a new variety.

Wenyon has obtained with *Leishmania americana* cultures morphologically identical with those of *L. tropica*, but of a more rapid growth.

Franchini found, in his case of American leishmaniosis, alongside of Leishmanias having the usual dimensions of *L. tropica*, some larger forms attaining a length of 5 or 6 micra; and, in cultures, he has seen parasites from 10 to 15 micra in length, and from 1½ to 2½ micra in width, the flagella of which reached a length of 40 micra.

G. Vianna found, in an ulcer of a patient from Minas Geraes (Brazil), Leishmanias which showed, when stained by Romanowsky's method, a red filament athwart the median portion, not projecting beyond the enveloping membrane; Vianna proposed to give to this Leishmania, which he regarded as a new species, the name *L. braziliensis*. The filament noted by Vianna seems to correspond to the rhizoplast already observed by different authors.

Escomel has observed Leishmanias with short flagella in cutaneous ulcers contracted in Peru.

Rebagliata believes that he has seen, in sections of the ulcers of uta, flagellated forms similar to those in cultures, along with normal Leishmanias.

La Cava has found flagellated elements in patients suffering from Oriental sore complicated with ulcerations of the mucosæ, contracted in Italy. The presence of flagellated elements, which is very rare, in the ulcerations of patients suffering from Ameri-

can leishmaniosis cannot, therefore, be regarded as a peculiar characteristic of the Leishmania which is the cause of this disease.

From a morphological point of view, we may say that there are no characteristics that would enable us to differentiate at once between *Leishmania americana* and *L. tropica*; but this does not prove that the two are identical; the *Leishmania Donovani* has the same morphological characters as the *L. tropica*, but it is recognized that we are dealing with two distinct species, because the biological characters of the two parasites are very different, the first giving rise to kala-azar, the second to Oriental sore. It is by basing ourselves on the pathogenic action of the parasite, on the symptoms and the anatomical lesions, particularly those of the naso-bucco-pharyngeal mucosa, that we (Nattan-Larrier and Laveran) have proposed to make, not a distinct species, but a variety of the *Leishmania* of Oriental sore, under the names of *L. tropica* var. *americana*.

Several microbian associations have been noted.

Seidelin found, in two patients suffering from Yucatan ulcer, a diplococcus which was the only bacterium he found associated with the *Leishmania*. This diplococcus, either free or enclosed in the polynuclears, resembles the gonococcus, but it is stained by the Gram. Seidelin thinks it might play a pathogenic rôle.

In a case of cutaneous American leishmaniosis, McEwen also found a diplococcus, like the gonococcus, accompanying the Leishmania.

Wenyon found a similar diplococcus in Bagdad sore.

In smears from an espundia-ulcer of the mucosæ, Nattan-Larrier and I have found amebæ; in the preparations sent by Dr. Escomel there were no *Blastomyces*.

The mixed infections in American leishmaniosis should be studied carefully, since they might explain the differences in clinical phenomena that distinguish this disease from ordinary Oriental sore. It is known that the ulcer of hot countries is the production of these associations.

AMERICAN LEISHMANIOSIS IN ANIMALS.—The cases of natural infection of dogs by *Leishmania americana* are very rare.

In 1912, Pedroso observed, in northern Brazil, two dogs that had ulcerations of the nasal mucosa. One of the dogs had been found in a village where there was only one case of leishmaniosis

in man; this patient had ulcers of the nose and throat of five years' standing. The dog was in bad condition; he had cutaneous ulcerations besides the lesion of the left nostril; smears made from scrapings from the nasal ulcer showed numerous Leishman-bodies identical with those from the human subject. The master of the other dog had an ulcer of the foot that was diagnosed as Leishmaniosis, and he made the dog lick his ulcer; the animal thereby became directly infected, but it is to be noted that a histological examination of the nasal lesion of the dog was not made; the diagnosis rested on the macroscopic appearance of the ulceration, and the history of the case.

G. Vianna, who examined a section of the skin of the nose of Pedroso's first dog, said that he found Leishman-bodies among the unstriped muscular fibres of an arteriole; according to him, the *Leishmania braziliensis* is a near neighbor to the *Schizotrypanum Cruzi.*

I have sometimes seen *L. tropica* heaped up in the fusiform cells of the connective-tissue, which might easily be mistaken for unstriped muscular fibres.

Migone has examined the cutaneous lesions of hunting-dogs of laborers working in the regions where leishmaniosis is endemic, but he has never found any *Leishmania* in these animals.

Brumpt and Pedroso saw, in a region in Brazil where leishmaniosis is endemic, five cases of ulcers in dogs, but they did not find any Leishmania in these ulcers; the dogs of the forest-workers are fierce and difficult.

Wenyon successfully inoculated a dog with virus taken directly from a man; a young dog, inoculated intravenously, was not infected. Migone has inoculated dogs unsuccessfully.

Wenyon obtained two nodules in a cat inoculated with material taken from a man. Migone failed in his attempts to inoculate cats.

F. Sant'Anna successfully inoculated two cercopitheci with virus from a patient affected with leishmaniosis of Brazilian origin; the inoculations were made in the supra-orbital region. A monkey, inoculated on the edge of the nostril with virus from one of the cercopitheci, was likewise infected.

Wenyon also infected a baboon. A *Cebus libidinosus* inoculated by Migone was not infected.

Wenyon failed in his attempts to inoculate hares and mice.

MODES OF PROPAGATION OF AMERICAN LEISHMANIOSIS.—It is the generally accepted opinion in America that ulcerative leishmaniosis develops after the bites of insects. Many patients can even give the date when they were bitten, the divergence being when they are asked to identify the infecting insect. Besides, it can be readily understood that, in the hot and moist atmosphere of the virgin forests where leishmaniosis rages, and where blood-sucking insects abound, the patient would have some trouble in designating the particular insect that inoculated him; and that he would be most likely to incriminate, in each locality, the insects or acarians that are most in evidence, or which inflict the most painful bites.

It thus comes about that mosquitos, simulia, various puncturing flies, and, above all, the ixodes, have all in turn been accused of being the propagating agent in this disease.

In the Panama Canal Zone, the natives accuse a fly called *mosca boyana* of being the cause of the ulcers; this fly is found only on the broad yellow flowers of the boyano, which is a jungle-plant.

Franchini's patients, who had contracted ulcerating leishmaniosis in Brazil, believed that a fly of a yellowish color, called *cotunga* by the natives, had made the punctures from which the ulcers afterwards developed.

A. da Matta, in Manaos (State of Amazonas), suspects that the *Dermacentor electus* is the propagator of the ulcers.

Flu, of Surimam, also incriminates the ixodes.

In Paraguay, of the laborers who contracted the disease in the forest, some blame the very painful bites of the simulia, which they call *mbariguies,* others blame the bites of ixodes, *Amblyomma striatum, A. fossum, A. cajanense* (Migone, Lindsay).

Brumpt and Pedroso, after passing on review the various insects or acarians that might be suspected of transmitting American leishmaniosis, reach the conclusion that the tabanides are the most suspected of all insects; they remark that the gad-flies (*taons*), a diurnal insect, attack by preference the face and exposed parts of the extremities, which corresponds with what we know concerning the usual localization of the ulcers; moreover, the gad-flies do not wander afar, which agrees with the fact that the foci of leishmaniosis are very localized; the localities close to ponds are those in which the disease is most often contracted,

and those also in which gad-flies abound. The *stemoxys*, which might also be incriminated, is much rarer in the forests than in the pastures, where ulcerative leishmaniosis is never contracted.

In the valley of Convencion, Peru, the inhabitants accuse a simulium as the carrier of the disease (Migone).

To sum up: The rôle of insects or acarians in the propagation of American leishmaniosis, as in that of Oriental sore, is very probable, seeing that we are almost always dealing with dermatoses, localized primarily, at least, in the exposed parts of the body, but it has not been possible, up to the present, to distinguish, among the multitude of biting tropical insects, the one that is the veritable agent in the transmission of the disease.

It is possible that several species of biting insects are capable of transmitting leishmaniosis. Migone relates that he had occasion to treat patients whose ulcers had developed after bites from a simulium or a mosquito, or on small abrasions of the skin, as if the germ had been on the surface of the skin, and only awaited a solution of continuity in order to penetrate. I made similar remarks concerning Biskra boil. It is possible that the biting insects or acarians merely serve to open a door of entrance to the microbes without actually conveying them; this rôle (of carrier) could be performed by ordinary flies which, by not making punctures, are never accused by the patients of being propagators of the disease.

There can be no doubt that American leishmaniosis is inoculable from man to man, and is transmissible.

More than once, the disease has developed in a woodyard of the forests of Brazil, Peru or Paraguay after the arrival of a laborer affected with the ulcers.

Auto-inoculation, by scratching or otherwise, is not rare. Seidelin reports the case of a patient with an ulcer of the right ear who, while lying down, used to rest his head on the right forearm, contracted an ulcer on the latter.

We have already seen how two dogs were probably contaminated by their masters.

Leishman-bodies are found in the sero-purulent liquid in the base of the ulcers, and we know with what avidity, in hot countries, house-flies suck the exudate of wounds; after having become soiled on the ulcers, it is evident that the flies can easily transport to an abrasion of the skin of a healthy man the patho-

genic microbes which adhere to the proboscis or feet of the fly.

Man can all the better serve as a source of supply for the virus, since the ulcers often last for years.

It may well be asked if some of the lower animals could not serve in a similar capacity.

According to the Brazilian hunters, wild animals never have ulcers like those in man. Only Brumpt and Pedroso have remarked the existence of ulcers in two agoutis; in one of these animals, the ulcers had been invaded by the larvæ of flies.

Among the domestic animals, dogs only seem to act as a reservoir for the virus, and cutaneous leishmaniosis is very rare among them.

The natural host of the bouba-virus, according to the peons of Paraguay, is the rattlesnake. When one finds one of these serpents coiled up in the forest, there is generally a cloud of simulides hovering above it; and, if the serpent be killed, the *Amblyomma striatum* is found to adhere to it at various points. The simulides or the ixodes, having sucked the blood of the snake, transmit the microbe of the disease to man. This popular opinion has no scientific basis, but it is worth mentioning; a lizard, the gecko, has been suspected of being the reservoir of the virus of Oriental sore.

Finally, it may be supposed that, in certain conditions of environment, the flagellata which naturally live in insects or acarians become virulent in man. Franchini and I have demonstrated that mammals can be infected with the flagellates of fleas and mosquitos, and that, in experimental animals, one finds parasitic organisms having a close resemblance to Leishman-bodies. It still remains to investigate the flagellates of simulides and phlebotomi, which abound in the regions where cutaneous leishmaniosis is endemic.

DIAGNOSIS.

Leishmaniosis of the skin and mucous membranes was for a long time confounded with other diseases, particularly syphilis and leprosy; nowadays, we possess an easy and certain means of diagnosis in the search for the pathogenic agent; and inasmuch as, in the final analysis, it is to this search that we must have recourse, I will not dwell very long on the clinical characteristics, which of themselves enable us to make a diagnosis.

We have already seen that Leishmania is existent in variable ways in the boils and cutaneous ulcers and the altered mucosæ; the Leishmanias are numerous in recent lesions, rare or very rare in old ulcerations; they are often found in the exudate of the ulcerations; it is thus usually very easy to detect them. If the exudate be decidedly purulent, it is rejected, because Leishman-bodies are rarely found in pus in good condition, and we make smears with material scraped from the floors or edges of the ulcers. Leishman-bodies are more difficult to find in sections than in smears.

The dried smears are fixed in alcohol-ether, and stained by Romanowsky's method. The Leishmanias stain easily, and are quickly recognized in the midst of anatomical elements, thanks to their form, generally ovoidal, and to their characteristic nuclei.

American leishmaniosis, even when confined to the skin, is distinguished from Oriental sore by the more sluggish nature of the ulcerations, longer duration, and more difficult cure; above all, it is distinguished by its tendency to become localized in the naso-bucco-pharyngeal mucosa, causing disintegrations that are never observed in Oriental sore.

Some cases of leishmanian ulcerations have been reported in subjects who had contracted the disease in other countries besides South American; we shall see that these cases differ notably from naso-bucco-pharyngeal American leishmaniosis.

Cardamatis and Melissides report the case of a young man who had 35 Oriental sores (*boutons*), 24 of which were on the face, and two of the latter on the upper lip.

F. La Cava and Pulvirento observed four cases of invasion of mucosæ of the nose and lips in Italy. In one patient, the sores developed at the angles of the mouth, and the ulceration had gained the mucosa of the upper lip; in another, the sore developed at the orifice of the right nostril. In neither of these cases had the lesions the rapid course nor the gravity which they present in American leishmaniosis.

Christopherson observed in one of the natives of the Anglo-Egyptian Soudan a disease closely resembling espundia. The papule (*bouton*) began, in this patient, on the upper lip, which was swollen and sagging. At the inner part of the wings of the nose there were ulcers covered with crusts; the septal cartilage

had been partly destroyed. The ulceration had also reached the mucosa of the upper lip, close to the frenum and the neighboring gum. Scrapings from the ulcerations contained a small number of Leishman-bodies.

In all these cases, we have to deal with Oriental sores that developed on the lips or nostrils, and which afterwards extended to the neighboring mucosa of the mouth or nose, which is not the usual course in American leishmaniosis; furthermore, the slow and progressive evolution, lasting about ten or fifteen years, of this latter affection which can end fatally, is not comparable to the relatively rapid course of Oriental sore, which always ends in cure.

Castellani and Chalmers describe, under the name of "Indian oro-pharyngeal leishmaniasis," a disease which is close akin to American leishmaniosis. These authors observed, in two Europeans who had lived a long time, ulcerations of the posterior wall of the pharynx and the velum palati; there was no history of syphilis, and, in one case, Leishman-bodies were found in the ulcerations. As Castellani and Chalmers justly remark, these cases differ from espundia in not having any cutaneous lesions.

Blastomycosis, which is quite common in certain regions of South America, and notably in Brazil, Peru and Bolivia, has been confused until recent times with American leishmaniosis under the names of bouba or espundia; it has been well described by Lutz, Splendore, Carini and Escomel.

Blastomycosis generally begins at the mouth, contrary to leishmaniosis, which first shows cutaneous lesions; it rarely invades the nasal mucosa, and the alterations it causes in the buccal mucous membrance differ notably from those produced by leishmaniosis.

According to Splendore, blastomycosis is characterized by a callous infiltration of the buccal mucosa which invades the lips, the base and edges of the tongue, or by pseudo-tuberculous papules on the uvula and pillars of the fauces, or else by isolated or confluent papillomatous vegetations on the mucosa of the cheeks and gums, resembling condylomata. On the surface of the body, the skin presents sluggish, warty-looking ulcers, ordinarily small in size and few in number. The corresponding lymphatic glands are engorged. The patients complain of pain in the mouth which renders alimentation difficult; they are tormented

by copious and incessant salivation. In serious cases, there is hectic fever, prostration, respiratory troubles (cough, bronchial catarrh, with sputum streaked with blood), and alterations of the voice even to the point of aphonia.

The examination of smears made with the scrapings from ulcers reveals the presence of *Blastomycetes,* which are easy to distinguish from Leishman-bodies. The fungus which, in the lesions of the skin or mucous membranes, appears as a yeast-plant, assumes a filamentous form in cultures. Splendore calls it *Zymonema braziliense.*

From the standpoint of treatment, it is necessary to make a correct and early diagnosis, since the remedies that are useful in leishmaniosis of the skin and mucous membranes are of no avail in blastomycosis; in the latter affection, iodids give the best results.

Framboesia tropica, which is often designated *pian* in the French colonies, was for a long time confused in Venezuela and other American countries, under the name of *buba,* with American leishmaniosis and other ulcerative diseases. This disease, which is clearly characterized by a granulomatous and raspberry-like cutaneous ulceration, and caused by a treponema (*Treponema pertenue* (Castellani), is easy to distinguish from American leishmaniosis; the mucous membranes are not attacked.

Verrugu peruana (Peruvian wart) is confined to certain regions of the Andes at an altitude of from 3,000 to 10,000 feet. The disease, of unknown nature, is characterized by an irregular fever, accompanied by rheumatic pains, anemia, and a granulomatous ulceration of the skin and mucous membranes. This eruption cannot be confused with the ulcers of leishmaniosis.

Castellani and Chalmers have described, under the name of *gangosa* (*rhinopharyngitis mutilans* of Leys), an ulcerative disease of the mucosæ of the palate, nose, pharynx and skin, which destroys the cartilages and bones, causing grave deformities. Gangosa, the cause of which is unknown, has been observed in the Mariana Islands, in British New Guinea, and the Caroline Islands. The slow march of the ulcerations of the mucosæ, which may last from ten to thirty-five years, recalls that of American leishmaniosis, but there are no cutaneous localizations, and no Leishman-bodies are found; neither are any Hansen's bacilli

(leprosy) found, nor treponema, and anti-syphilitic treatment has no effect.

PROGNOSIS.

When it is confined to the skin, American leishmaniosis constitutes a more or less disagreeable, transitory disease, according to the number, extent, and localization of the ulcers, but it always ends in cure, though leaving, it is true, indelible scars, which are particularly unpleasant when situated on the face, besides some disfigurements, such as partial destruction of the external ear, deformity of the nose or lips.

When the disease invades the mucous membranes, the prognosis is much more gloomy. The patient becomes an object of loathing to those around him, both on account of his appearance as well as the fetor which he gives off. The continual salivation which results from the alterations of the buccal mucous membrane is very annoying to the patient, and is very unclean; mastication and deglutition become progressively more painful and difficult, and this leads to emaciation; respiration itself becomes embarrassed, when the inflammation reaches the larynx.

Complications sometimes cause death at this advanced stage of the disease.

When the mucous membranes become involved, Escomel says, nothing stops the course of the disease; we must be content to destroy, with the galvano-cautery, as much of the ulcerated mucosæ as possible, in order to give some relief to the sufferers, but relapses are inevitable.

The progress of therapeutics has modified, as we shall see, the hopeless prognosis of Escomel.

TREATMENT.

Ablation of the primitive cutaneous ulcer and deep cauterizations constituted, until recently, the principal treatment of American leishmaniosis. It was admitted that, in order to escape the naso-bucco-pharyngeal accidents, it was necessary to remove with the scalpel the primitive cancrous lesion, by encroaching freely upon the neighboring healthy tissues, or else to destroy the diseased tissues with the hot iron or a saturated solution of carbolic acid in alcohol.

Complete destruction of the initial ulcer by the thermo-cautery seems to prevent, according to Lindsay, the secondary naso-

bucco-pharyngeal lesions.

When the mucosæ were invaded, it was still deep thermo-cauterization that was resorted to; but only temporary amelioration was obtained, which can be understood when we recall that the cauterizations did not reach the Leishman-bodies in the deeper tissues, particularly in the anfractuosities of the nasal passages. Moreover, the deep cauterizations gave rise to the formation of retractile fibrous cicatrices, which were sometimes very annoying.

It was evident that cauterization was but an imperfect treatment when the leishmaniosis had reached the mucosæ, and that a medication capable of arresting the course of the disease was to be desired.

According to Migone, hectine, salvarsan, and soamin give slow improvement without causing the Leishman-bodies to disappear; and it is indispensable to resort to the actual cautery (three or four applications) in order to bring about a definite cure.

Neosalvarsan intravenously, according to Almenara, happily modifies the ulcerative lesions due to leishmaniosis; as a treatment for the cutaneous ulcers, the same author recommends moist antiseptic applications; he says that deep cauterizations and excisions leave grave deformities.

According to Monge, the cutaneous lesions are amenable to neosalvarsan.

The use of tartar emetic by intravenous injection, at first recommended by Vianna of Brazil, and afterwards by different observers, seems to constitute a great advance in the therapeusis of American leishmaniosis. G. Vianna, Machado, O. d'Utra e Silva, Terra, P. da Silva, Carini, Lapa have mentioned instances of cures of American leishmaniosis of the skin or mucous membranes which leave little doubt as to the efficacy of this form of treatment, which had already been successfully used in the trypanosomiases.

The Brazilian method consisted in employing tartar emetic in a one per cent. solution in normal saline solution; this is filtered by the Berkefeld method, and five cubic centimeters are injected daily for five consecutive days in a vein at the bend of the elbow.

Carini advises the injection of from five to ten c. c. of the solution into a vein every day or second day according to the tolerance of the individual. The number of injections in one of his

cases was twenty-seven, and in others, forty.

The solution of tartar emetic, which is caustic, causes severe pains when it is injected into the connective-tissue instead of the vein; before emptying the syringe, it is necessary to be certain that the canula has entered the vein. In order to avoid the attacks which the injections sometimes cause, it is advisable to inject the liquid very slowly.

The ulcerations of the mucous membranes are more obstinate than those of the skin, and require a more prolonged treatment.

One of Carini's patients had an ulcer on the forehead and three granulomata (*boutons*) on the face which contained numerous Leishman-bodies; after twelve injections, the ulcer on the forehead had cicatrized, and no more *Leishmania* were found in the granulomata. Tartar emetic thus possesses a specific action on the *Leishmania americana*. It would be interesting to ascertain if it acts similarly in other leishmanioses.

In one patient of A. Lapa, the nasal mucosa was attacked. Tartar emetic was administered every second day, beginning with a dose of three centigrams; after the sixth injection, the patient was nearly well, and in three weeks cicatrization was complete.

PROPHYLAXIS.—We are not well acquainted with the conditions in which American leishmaniosis is propagated, and it is difficult, therefore, to lay down precise rules for prophylaxis.

In Paraguay, the peons smear their arms and legs with chicken-fat in order to escape the bites of simulia and the resultant ulcers (Lindsay). This practise has the advantage of keeping the skin in good condition whenever the bites of insects, and the inevitable scratching, open the doors of entry to the Leishman-bodies.

For the same reason, in order mechanically to guard against the bites of insects, all the doors and windows of a building should be screened with wire-screen, or, at the very least, mosquito-bars should be used at night. Moreover, this is a measure of practical sanitation that is necessary in every malarious district.

A man suffering from ulcerative leishmaniosis of the skin or mucous membranes constitutes a reservoir of dangerous virus, and he should be isolated in localities where leishmaniosis is endemic. The cutaneous ulcers should not be allowed to remain uncovered; by means of suitable antiseptic dressings, they should be shielded from house-flies, the rôle of which is no longer doubt-

ful in the transmission of leishmaniosis. When we have to deal merely with granulomata (*boutons*) of the face, we should encourage the formation of crusts, by means of iodoform, for example, which drives away the flies.

When patients present themselves, with large, or multiple ulcers, or with invaded mucosæ, they should at once be treated with intravenous injections of tartar emetic.

Sick dogs with ulcerations on the surface of the body should be killed at once, and the corpses burned.

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Editorial Department.

CHAS. CHASSAIGNAC, M. D. ISADORE DYER, M. D.

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A. W. DeROALDES, M. D., Surgeon-in-Chief, Eye, Ear, Nose and Throat Hospital, New Orleans.
E. A. ROBIN, M. D., Prof. of Diseases of the Eye, Tulane Univ. of La.
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ROY M. VAN WART, M. D., Prof. of Psychiatry, Tulane Univ. of La.

THE NATIONAL CARE OF LEPROSY.

During the past twenty years several attempts have been made to create enough interest in the National Congress to bring about some national provision for the care of leprosy. All of these failed. Now a comprehensive bill (S. 4086) is in the hands of the Committee on Public Health and National Quarantine, after having been favorably acted upon by the House of Representatives. The bill provided a plan for acquiring a site, a method of operation under the U. S. Public Health Service, and the sum of $250,000 to make these effective.

The growing number of lepers in the United States and the absence of any provision in most states, together with the large

number of immigrant lepers, bespeak consideration of such a plan.

The successful results following segregation in the Philippines, Hawaii, Norway and other leprosy centers argues this as the proper method for the control of this disease. Moreover, the only grouped cures have come about in such colonies, where a continuous method can be employed under scientific direction.

The issue is one of national importance and the outcome of the Senate's action will be awaited with interest.

RECIPROCITY WITH TEXAS.

It is with great satisfaction that the JOURNAL announces that reciprocity has been established between Louisiana and Texas. The welcome information is conveyed by the very efficient secretary of the Louisiana Board, Dr. E. L. Leckert, who also testifies that the energetic efforts of the secretary of the Texas Board, Dr. M. P. McElhannon, contributed largely to the removal of the final objections and the crowning with success the efforts, inaugurated since 1911, for a proper reciprocal action between the two neighboring and otherwise closely associated states.

The main conditions for a physician wishing to be licensed through reciprocity are that the applicant must appear in person before the proper official of the State in which he seeks a reciprocal license; he must have practised medicine at least one year in the other State; he must possess a certificate from either State, granted after an examination in which he obtained an average grade of not less than seventy-five per cent; he must be the legal possessor of a diploma from a college of medicine considered in good standing by both Boards; he must present, in proper form, evidence that he is in good standing in the profession and in his community.

This addition makes a total of thirty-two states now reciprocating with Louisiana, a fact which speaks volumes for the standing and the energy of the Louisiana State Board of Medical Examiners.

THE FORCHHEIMER CHAIR OF MEDICINE IN CINCINNATI.

It might be sufficient to announce the gratifying news that friends of the University of Cincinnati had contributed $150,000 to establish an endowment fund for a chair of medicine, which had been named after a distinguished clinician and teacher, with the idea of perpetuating his memory in service to medical education. The establishment of the Forchheimer Chair of Medicine, however, is but one phase of a great municipal plan for a medical college, intended to satisfy the best ideals of public service.

The conception of such an undertaking was possible only through the interest of the community and through a resultant response evidenced in actual contribution of funds sufficient to make the plan effective. The Medical College of the University of Cincinnati now represents a progressive institution with a complete hospital plant, embracing all departments and including provisions for infectious diseases and special buildings for tuberculosis. The teaching units of the plan have been postponed until the hospital had been completed.

The whole scheme and its accomplishment have come about in just ten years and the public spirit behind the institution seems to grow stronger with its development. The outlook, therefore, is excellent and the efficiency of the working and teaching forces of the college itself will be assured, for there is no one thing more conducive to accomplishment than the encouragement which comes from that support which supplies the means of maintenance and operation.

The example here noted in Cincinnati may well serve for other communities and the results must commend the foresight of a city and its people who have the intelligence to realize that such investment provides a healthier city and state and better trained men to keep them so.

AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION.

On April 4, 5, 6 and 7, 1916, this Association will meet in New Orleans for its seventy-second annual session.

The preliminary program promises a most attractive collection of essays, covering many fields of mental disorders and correlated

phases. All of the meeting is open to persons interested and the unusual opportunity should attract the profession.

The field covered by this Association is full of problems for solution and the contributions promised at the meeting appear to be quite advanced. The whole subject of medicopsychology, leading us to psychiatry, is large *terra incognita* to the rank and file of the medical profession.

Cursory acquaintance with the press outcroppings of Freud's theories and of their antagonists make for a desire to know more of this phase—but this is but one of the divisions of the scope of operation of the Medico-Psychological Association.

The reactionary movement in the attitude towards the insane has completely changed the organization of modern asylums and, except in benighted communities, the groups of insane confined in institutions are more and more cared for as human beings, and as such are colonized and made co-operative.

Much of the present-day practise with the insane has been brought about through the activities of the American Society for Mental Hygiene, the work of which has come in close association with the body which meets in New Orleans in April. This is natural, for the reason that the Mental Hygiene Society stands for reform and the Medico-Psychological Association is largely constituted of those in charge of insane asylums in which the reform has certainly been most needed. The closer relations of the two organizations, then, must work out results satisfactory to both.

It is natural that the occasion of such a meeting should create local interest, and to further this the Louisiana branch of the Mental Hygiene Society proposes convening at the same time.

A final program will be issued in due course, but it is positively announced that the headquarters will be at the Grunewald Hotel, New Orleans, and all who are interested may obtain detailed information from the Secretary, Dr. Henry C. Eyman, at Massillon, Ohio.

Miscellaneous Abstracts

HEREDITY AND EUGENICS.—It has been said frequently that each man is the product of his environment, but no environment will make a Shakespeare out of an ordinary man. The kinds of breeding which produce our great men and our feeble-minded men are as widely separated as are the men themselves.

The theory that acquired characters are not inherited originated in a misconception of what an acquired character is, and in an experiment which is absurd on its face. To acquire means to obtain by effort, by exertion, by the performance of work. An acquired character is one obtained by exercising an organ, or by the work performed by the organ. It consists of a physiological change occurring within the organ which is dynamic in character and is called dynamic development. The amount of an acquirement is proportional to the amount of work performed. A mentally active man has a better developed brain at the age of fifty than he had at the age of twenty, and the difference is due to the extra amount of mental work performed.

If an acquirement is to be inherited, the parent must make the acquirement first and get the offspring afterwards, not get the offspring first and make the acquirement afterwards.

Among certain eugenists there is a theory that it is impossible to produce an individual which is superior to anything which previously existed. That is, if some very superior individual exists it is because there was, somewhere in his ancestry, a similar superior individually. This theory amounts to a denial of evolution and a return to the Garden of Eden story with Adam and Eve originally created equal to any individual who has since existed.

It is not clear how widely extended this theory is, but it seems to be back of the proposition to sterilize a large part of the population. That proposition is a public confession, by those who make it, that they know absolutely nothing about what causes improvement and what causes degeneracy. In their despair at seeing no way to improve the race other than that of killing off the inferior, they propose the killing process by indirection.

Let us consider the horse. A century ago there was no horse

in the world capable of trotting a mile in three minutes. Now we have horses which have trotted a mile in two minutes. This is an absolute and very great advance in power made in the past 100 years. It has been said repeatedly that this improvement came about through selection, but the statement is not true and is made in complete ignorance of the facts. Selection has been used abundantly among horses, but that selection is not connected with the improvement which has taken place.

High speed at the trot is not a natural gait for horses. It is an artificial gait which never existed in any breed of horses until forced there by the art of man. Less than a century ago the only high speed gait for horses was the run, and when trotters were forced for speed they would break into a run. Now we have "born trotters" which will stick to the trot no matter how hard they are forced, and trotting speed approaches running speed. Here is a new character in the trotters of to-day.

To have selection a mare must have several foals. If she produces but one foal in her entire life, there can be no selection in her line. It is take that foal or none. Write out the pedigree of any 2:10 trotter, it matters not what one, and extend that pedigree to the time when there was no such thing the world as a 2:30 trotter. In that pedigree there will be from 5 to 20 mares, no one of which ever had more than one foal in her life. The other mares, and the sires in the pedigrees, will be found, on investigation, to have produced less than the normal number of foals. Also, the lines of improvement to our high speed trotters average only seven generations to the century, while the normal number is ten generations. Actual improvement came in those lines in which opportunity for selection was reduced to its lowest limit.

The same thing is true in intellectual power in man. Take any list of intellectually eminent men and you will find that they were sons of men much older than the average age of fathers when sons are born. A few will be found to be sons of comparatively young fathers, but push the investigation in those cases a little further and you will find that, while it is possible to get an eminent man from a young father, it is impossible to get one from a sucession of young parents. A succession of young parents always results in the production of mental inferiority, and, if the

parents are unusually young, in such a succession the product is weak mentally.

To maintain any group of animals on a level in its power capabilities there must be a certain amount of acquirement per generation before reproduction. If the amount of acquirement is decreased there is a decline in power capabilities toward a lower corresponding level. If the acquirement is increased there is a rise toward a higher corresponding level. The age of parents at time of reproducing is one factor in measuring the amount of acquirement, and an investigation which did not consider this factor in at least three generations of ancestors would be superficial. (Casper L. Redfield, in an address before the Eugenics Educational Society, Chicago, December 10, 1915.)

Society Proceedings

THE FOURTH DISTRICT MEDICAL SOCIETY.

Pursuant to a call of Dr. J. E. Knighton, Councilor for the Fourth Congressional District, thirty-three physicians of the Fourth Congressional District of Louisiana assembled at the Academy of Medicine rooms, in Shreveport, February 15, for the purpose of organizing a fourth district medical society.

The meeting was called to order by Dr. Knighton, who nominated Dr. R. M. Penick, president of Shreveport Medical Society, as temporary chairman; Dr. A. A. Herold was nominated as temporary secretary; both chosen unanimously. Dr. Knighton then explained object of meeting and called upon Dr. Vaughn, secretary of the Fifth Congressional District Society, to explain the workings of his organization and to make appropriate suggestions.

On motion, the chairman then appointed Drs. Barrow, of Shreveport; Mosely, of Arcadia, and Edgerton, of Coushatta, as a committee, with Councilor Knighton, to draft constitution and by-laws. The committee retired and, after ten minutes, reported back their draft, which, with a few minor changes, was unanimously adopted.

Permanent organization being then in order, the following officers were elected: President, C. H. Irion, of Benton; first vice-

president, C. E. Edgerton, of Coushatta; second vice-president, J. L. Kimbell, Shreveport; secretary-treasurer, A. A. Herold, Shreveport. The Council, according to constitution, will consist of A. A. Herold, chairman, with the following parish secretaries: Tucker, of Bossier; Garrald, of De Soto; Norman, of Webster; Gahagen, of Red River; Wilkinson, of Claiborne; Mosely, of Bienville, and Walke, of Caddo.

On motion, duly seconded, the society tendered a rising vote of thanks to the visitor, Dr. Vaughn, of Collinston, for his assistance in organizing.

It was decided to have a meeting in Shreveport in March, exact date and program to be left to the Council..

It was also decided that the date of all meetings is to be left to the Council, but the place of each subsequent meeting to be decided at the preceding meeting.

All present were then enrolled as members, viz.: Caddo, R. M. Penick, J. E. Knighton, L. Abramson, F. M. Williams, S. L. Williams, C. F. Rew, J. M. Bodenheimer, J. L. Kimbell, E. A. Welsh, I. M. Callaway, F. G. Ellis, F. B. Waits, C. C. Sims, S. C. Barrow, W. W. Smith, M. S. Picard, Randall Hunt, J. C. Willis, W S. Hunter B. C. Garrett, A. A. Herold, J. A. Hendrick; Bienville, J. M. Moseley, F. F. Wimberly; De Soto, Guy Wimberly; Bossier, D. J. McAnn, G. A. Wise, C. H. Irion, H. P. Crow, R. Butler, C. M. Tucker; Webster, W. McDade; Red River, C. E. Edgerton.

On motion, meeting then adjourned, subject to call of Council.

(Signed) A. A. Herold, *Secretary.*

Medical News Items

It Costs to Be Healthy.—According to a report from the Russell Sage Foundation, the health cost for 227 cities of over 25,000 population in the United States is twenty-two cents per capita.

Disease and War Make Ravages.—The New York Life Insurance Company recently published its 71st annual report and shows that during the past year 409 of its policy-holders were

killed in battle, 448 by accidents in civil life, while 709 died of cancer, 772 of pneumonia and 950 of tuberculosis.

MEETING OF MEDICAL JURISTS.—The American Association of Medical Jurisprudence will meet in Washington, D. C., May 6, at the New Willard Hotel, under the presidency of Dr. D. Percy Hickling, Washington, D. C. Dr. William A. Woodward is chairman of the committee of arrangements.

THE AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION will hold its seventy-second annual meeting at the Grunewald Hotel, New Orleans, La., April 4, 5, 6 and 7, 1916. A preliminary program has been furnished which promises material of much interest to the profession. About 450 to 500 of the most capable and distinguished mental and neurological specialists of the United States, of Canada and of the Central and South American Republics will attend this convention.

There will also be held at the same time and in connection with the meeting of the American Medico-Psychological Association the annual meeting of all the affiliated State Societies for Mental Hygiene.

THE DE ROALDES PRIZE.—The American Laryngological Association announces that the de Roaldes Prize, a gold medal representing $100, is now open for competition to practitioners in regular standing in the United States and Canada, who are *not* members of the American Laryngological Association. Essays must be typewritten, and the usual methods to prevent the disclosure of the author's name must be observed. All essays must be in the hands of the secretary of the association, Dr. Harmon Smith, 44 West Forty-ninth Street, New York City, prior to April 20.

THE AMERICAN GYNECOLOGICAL CLUB met in New Orleans, February 11 and 12, 1916. Over twenty surgeons attended the meeting. Clinics were held at the Charity Hospital and Touro Infirmary by the leading gynecologists and surgeons of the city. Several social functions were also arranged for the meeting.

SULTAN REWARDS GERMAN SURGEON.—According to report from Berlin, by way of London, an aide-de-camp of the sultan recently arrived in Berlin bearing a fee of about $30,000 for Dr. Israel, who recently operated on the Turkish Sultan.

PHOTOGRAPHS OF PHYSICIANS.—The *Journal of the A. M. A.* has been in receipt of several letters recently, reporting that a prominent New York "picture service" corporation is asking

physicians to sit for photographs to be used in the *Journal*. The *Journal* states that such requests have not been authorized.

RURAL HEALTH CONSERVATION.—A special appropriation of $100,000, for field work of the United States Public Health Service, has been applied for by the Secretary of the Treasury. The object of the service is to conserve the health of the people and the field investigations are not confined to any one section, but are directed along many lines, and have to do with malaria, typhoid fever, tuberculosis, trachoma and many other diseases.

AMERICAN MEDICAL COLLEGE ASSOCIATION ELECTS.—The following officers were elected at the annual meeting of the Association of American Medical Colleges in Chicago, February 8. President, Dr. John L. Heffron, Syracuse, N. Y.; vice-president, Dr. William S. Carter, Galveston, Tex.; secretary-treasurer, Dr. Fred C. Zapffe, Chicago (re-elected); and executive council, Drs. William J. Means, Columbus, Ohio; Isadore Dyer, New Orleans; Samuel W. Lambert, New York City; Charles R. Bardeen, Madison, Wis., and F. C. Waite, Cleveland, Ohio. Beginning January, 1918, two years' college work will be required as an entrance qualification for the colleges of the association, according to a resolution passed by the Association.

UTAH ADDED TO RECIPROCITY LIST.—Louisiana has added Utah to the list of reciprocating states. There are now thirty-two states with which Louisiana reciprocates.

FREDERICK FORCHHEIMER CHAIR OF MEDICINE.—The inauguration of the Frederick Forchheimer Chair of Medicine was celebrated by the University of Cincinnati on January 28, 1916, and Dr. Roger Sylvester Morris was installed as Frederick Forchheimer professor of medicine.

THE AMERICAN JOURNAL OF ORTHOPEDIC SURGERY.—This journal, the only one in the English language devoted to orthopedics, has recently completed its thirteenth volume as a quarterly publication and will henceforth be issued monthly. The first number in the new form began in January, 1916. Dr. Mark H. Rogers, Boston, has been appointed editor by the American Orthopedic Association.

ANTI-SPITTING CAMPAIGN.—Over 1,500 persons were brought into the magistrates' courts of New York City, during the second week of January, for violation of the ordinance forbidding spitting in public places. Nearly all of them were fined from one to

ten dollars. The public health department points out the fact that the chief value of such a campaign lies in its educational effect, and newspaper publicity is a big factor in this phase of the campaign. It would be well for New Orleans to follow in New York's footsteps, for certainly a rigid campaign is needed in this direction.

MT. SINAI HOSPITAL TO EXPAND.—At a recent meeting of the board of directors of Mt. Sinai Hospital, in New York City, a plan to expand the hospital into a general one was presented. It is announced that $2,150,000 is necessary to make the institution into a general hospital, of which $1,400,000 had already been subscribed or contributed, leaving $750,000 more required. It is not contemplated to expand the hospital indefinitely, but a sufficient development is proposed in order to bring into proper proportion and relation all of the recognized branches of medicine and surgery. The plan will include the construction of new buildings, with equipment, to cost $1,800,000.

HOG CHOLERA VACCIN TESTED.—The Bureau of Animal Industry of the Department of Agriculture recently made exhaustive tests of a vaccin for hog cholera developed by Dr. Charles W. Duval and Dr. M. J. Couret, of New Orleans. Drs. Duval and Couret contend that the vaccin will furnish hogs complete immunity.

SENATE CALLS LEPROSY EXPERTS.—At the suggestion of Senator Ransdell, chairman of the Committee on Public Health, permission was given by the Senate to summon to Washington, at the expense of the government, certain experts on leprosy. Senator Ransdell is planning comprehensive hearings on his bill to provide a national leprosarium. There is not much published information on the subject of the extent and nature of leprosy in the United States, and it is expected that great good will result from the publication of this testimony. Among those summoned were: Drs. M. Bracken, of Minneapolis; Frederick L. Hoffman, Newark, N. J.; M. F. Engman, St. Louis; Howard Fox, New York; Isadore Dyer, of New Orleans, and a number of health officials, including several from the U. S. P. S.

INTERN VACANCY U. S. MARINE HOSPITAL.—There is a vacancy in the Intern Corps of the U. S. Marine Hospital, New Orleans, La. Applicants for the position must be graduates of

reputable medical colleges. No applicant will be appointed who is married or who is under 22 or over 30 years of age. Quarters, subsistence and laundry are furnished, and the pay amounts to about $25 per month. The appointment is for one year.

Applications should be made to the Medical Officer in charge, U. S. Marine Hospital. New Orleans, La., and two or more letters certifying to the moral character and professional ability of the applicant should accompany the application.

Cigar Cutters Transmit Disease.—It is customary among smokers who use cigar cutters to moisten the tip of the cigar with the lips before cutting it off. This habit is apt to carry much infection with it by transmitting the saliva of persons wetting the cigar to the cigar of the next person using the cutter. The New York Health Department therefore suggests that the moistening of cigars before cutting be dispensed with as unnecessary and that only cutters where only the knife blade comes in contact with the cigar be used. To this end a conference will soon be held with proprietors of retail cigar stores, urging them to use sanitary cigar cutters.

Money to Cleveland Medical Library.—By the will of the late Dr. Dudley Peter Allen, senior professor of surgery in Western Reserve University, $200,000 has been left to the Cleveland Medical Library Association. Interest from the fund is to be paid to the association quarterly, and the trustees of the association expend this interest at their own discretion for the benefit of the library. The principal, however, is to remain in trust perpetually.

Chemical Exports Increase.—As compared with those during 1913, the last year of normal times, the exports of chemicals from the United States during the last year show a tremendous increase. The total value of the chemicals exported in 1915 exceeds $75,000, as against $25,000 in 1913. The increases have occurred principally in acids, bark extracts, dyes and dyestuffs, and soda salts.

American Association of Anatomists.—At the meeting of the American Association of Anatomists held recently in New Haven, Conn., the following officers were elected: President, Dr. Henry H. Donaldson, Wistar Institute; vice-president, Prof. Clarence M. Jackson, University of Minnesota; members of the

executive committee, Prof. Eliot R. Clark, University of Missouri, and Prof. Reuben M. Strong, University of Mississippi. Prof. C. R. Stockard, Cornell Medical School, New York City, was re-elected secretary of the Association.

MEMORIAL OF ANGELO CELLI.—We are in receipt of a notice which has been issued by the Italian Society for the Study of Malaria, in which it is announced that the Society for the Study of Malaria, of which Professor Angelo Celli was the founder and the animating and guiding spirit, has decided to start a subscription for the purpose of erecting in his memory a monument which will perpetuate the record of his accomplishments for all time. It is believed that such a monument should stand on the Roman Campagna, the field of the studies and the object of the most loving care of Angelo Celli; on the spot where he has redeemed man and earth from the scourge of malaria. The Society turns not only to its members, but to the scientists, the physicians, the proprietors and improvers of the soil, to the agriculturists, to the teachers; to all who have admired the profound labors and the innumerable beneficent activities of Angelo Celli. Gifts may be sent to the Treasurer of the Society, Prof. Allessio Nazari, via Agostino Depretis, 92 Roma, or to Dr. W. S. Thayer, 406 Cathedral Street, Baltimore.

RELIEF FUND FOR THE BELGIAN PROFESSION.—The report of the treasurer, Dr. F. F. Simpson, of the committee of American physicians for the aid of the Belgian profession, shows, for the week ending February 5, 1916, a total disbursement of $7,310.04, and a balance on hand of $631.82. The total receipts are $7,941.86.

THE AMERICAN PROCTOLOGIC SOCIETY will hold its sixteenth annual meeting in Atlantic City, N. J., June 22 and 23, 1916. The profession is cordially invited to attend all meetings.

PERSONALS.—Surgeon General William Crawford Gorgas, of the United States Army, addressed the Canadian Club, Toronto, January 17, on "Sanitation in Panama."

Prof. Ayres Kopke, of Lisbon, was recently awarded the prize, by the Sociedade de Georgraphia of Lisbon, for the best work by a Portugese writer on sleeping sickness.

Dr. Roy D. McClure, former resident surgeon at Johns Hopkins, has been made surgeon-in-chief to the new Henry Ford Hospital in Detroit.

Drs. E. L. Leckert and Isadore Dyer attended the meetings of the Conference on Medical Education, at Chicago, in February.

Dr. Rupert Blue received in January his reappointment to serve his second term as Surgeon General, United States Public Health Service.

Dr. John F. Oechsner (New Orleans) was elected head of the Charity Organization Society of this city.

Dr. Leo H. Bækeland, a member of the Naval Consulting Board, won the Perkins medal for distinction in industrial chemical research, awarded by the Society of Chemical Industry.

Assistant Surgeon General Leland E. Cofer, U. S. P. H. S., has been appointed by Surgeon General Blue to take over the Quarantine Station of the Port of New York.

REMOVALS.—Dr. M. C. Garner, from Porterville to Meridian, Miss.

Dr. F. R. Singleton, from Pointe-a-la-Hache to Slidell, La.

Dr. C. B. Harrington, from Boydell to Wilmot, Ark.

Dr. Paul B. Landry, from Morley to Port Allen, La.

Dr. C. K. Olivier, from New Orleans to Abbeville, La.

Dr. J. W. Tillson, from Wisner to Cohay, Miss.

Dr. J. R. DeVelling, from Arleo to Laurel, Miss.

MARRIED.—On January 31, at Bay Springs, Miss., Dr. A. R. Austin, of Freeney, to Miss May Robbins, of Bay Springs, Miss.

DIED.—On January 23, 1916, Dr. Thomas P. Singletary, a prominent physician of Baton Rouge, La.

On February 6, 1916, Dr. O. Hendrick, of Meridian, Miss. Dr. Hendrick was the oldest living graduate of Tulane Medical Department and a very prominent physician of Meridian.

Book Reviews and Notices

The Practical Medicine Series. Vol. IV: Gynecology; Vol. VII: Obstetrics. The Year Book Publishers, Chicago, 1915.

The Practical Medicine Series, comprising ten volumes devoted to a review of the year's progress in medicine and surgery, has been issued annually for a number of years and needs no introduction to the profession. The volumes are compact, the abstracts are chosen with care by competent authorities who comment on each subject, and the illustrations are introduced when necessary.

Since the first appearance of the series, the volume on gynecology has been edited by Drs. Emilius C. Dudley and Herbert M. Stowe, both of whom are well known as surgeons and contributors to current medical literature. For a brief review of the really new questions in gynecology, this little volume has no superior.

The volume devoted to obstetrics is edited by Dr. Joseph B. DeLee, with the assistance of Dr. Herbert M. Stowe. The material is arranged under four heads: Pregnancy, Labor, Puerperium and the New Born. This permits of an easy grouping of the entire subject of obstetrics, and the editors have shown the usual excellent judgment in the selection of the abstracts and the editorial comments.

These two volumes are well worth the review by the busy practitioner, who can purchase any single volume of the series he may desire. MILLER.

The Obstetrical Quiz for Nurses, by Hilda Elizabeth Carlson. Rebman Company, New York, 1915.

This is a small book of approximately 300 pages designed for the use of graduate and undergraduate nurses in the lying-in room. It is arranged as a series of questions and answers covering the essentials of the science and art of obstetrics. In addition, it contains a chapter devoted to the preparation of antiseptic solutions, dosage, etc., and a chapter written by Drs. A. J. Rongy and S. S. Arluck on "Scopolamine-Morphine Anesthesia."

The book will appeal to the graduate nurse as a ready reference and will be of value to the undergraduate in class work.

MILLER.

Orthopedic Surgery. By E. H. Bradford, M. D., and Robert Lovett, M. D. Wm. Wood & Co., New York, 1915.

This is the fifth edition of the most popular text book on Orthopedic Surgery in English. It is 253 pages smaller than the edition published in 1905, the chapters being condensed in many places.

The chapter on Practical Details of Apparatus has been entirely left out, which is to be regretted, as the reviewer considers this was one of the most important chapters in the book.

Several of the articles have been partially rewritten and the new work by Abbott in lateral curvature is presented. The use of silk ligaments in the treatment of infantile paralysis is well described.

This book should be of great value to the general practitioner and the student of medicine. EDWARD S. HATCH.

The Care of the Baby, by J. P. Crozer Griffith, M. D. Sixth Edition. W. B. Saunders Company, Philadelphia.

While this book is originally intended to furnish "a reliable guide for mothers," it might well stand as ready and up-to-date reference for the general practitioner. It is written in plain, commonplace English and emphasizes the main principles of pediatrics in a style easily understood by the laity.

Dr. Griffith very wisely stresses the absolute uselessness of many treatments followed for so long by the more superstitious; for instance, the carrying of camphor bags about the body in order to prevent contracting infectious diseases may seem reasonable to some people, but the absurdity of such an idea is apparent to any thinking mind.

Again, the author very wisely calls attention to a fact that is worthy of observation by the profession, namely, the danger attending such diagnoses as "growing pains," "habit spasms," etc. After the appearance of a well developed case of tuberculosis hip, or a rheumatic endocarditis, it is too late to go back and reconsider one's blunder.

Dr. Griffith in his book discusses first the care and handling of normal babies; he then takes up the ordinary methods of handling sick babies and emergencies. He concludes with two appendices: the first dealing with the preparations of home remedies and the doses of the more popular drugs, while the latter includes rather full descriptions of some of the principles of infant feeding. Had Dr. Griffith confined himself more to the ordinary methods of preparing and handling whole milk dilutions he would have rounded out and completed a very useful and practical book for unprofessional use. His formulas, however, are all made from "top milk" mixtures, and, while they are plainly expressed and apparently easy to make up, top milk formulas are dangerous feedings to place in the hands of the average mother without the more or less constant guidance of a medical man.

D. P. WEST.

The Practical Medical Series; Pediatrics, Vol. V., by Isaac A. Abt, M. D. The Year Book Publishers, Chicago.

This medical series has been quite generally accepted by the profession as a quick and reliable reference in all departments of medicine and surgery.

Dr. Abt, editing the volume on pediatrics, has succeeded well in bringing together in the most concise form the principles underlying the main essentials of the diseases of children. He has covered the whole subject in a way which will give the busy practitioner a quick insight into the fundamentals of the subject and at the same time will acquaint him in a measure with the latest work being done in new fields of development.

Among the features interesting especially to the pediatritian is the new classification of nutritional disorders outlined by Schelbe. This is merely an elaboration of the classification given by Czerny and Finkelstein, respectively. It is very conveniently outlined and each division is given with detail explanation.

On the subject of empyema, which is one that both the medical man as well as the surgeon is always vitally concerned, we are somewhat surprised that Dr. Abt has overlooked the siphon method, more recently improved by Kenyon of New York. In a series of unreported cases directed by Kenyon, a mortality of 53% was re-

corded; but it is interesting to note, that of those cases under six months of age, 50% were saved, while none were saved through the older resection method. The thoracentesis of Kleeman, described briefly by Dr. Abt, might well be cited as a still further modification of the siphon method. With increased experience it would not be surprising to find thoracentesis more generally favored than any other method. Any method or operation which lessens the danger from shock, secondary infection, pneumothorax and favors the expansion of the lung without any resulting deformity of the chest wall itself is certainly to be encouraged.

The book also includes a brief resume on orthopedics, edited by Dr. Charles A. Parker, M. D. The subject is well handled and is written in a very definite style. Several good illustrations are also shown. WEST.

Medical Electricity, Rœntgen Rays and Radium, by Sinclair Tousey, A. M., M. D., Second Edition. W. B. Saunders Company, Philadelphia and London, 1915.

This work as it is now presented is the most complete, comprehensive and up-to-date work of its kind. It contains all that is good and of value on the subjects of Medcial Electricity, Rœntgen Rays, and Radium that can be embodied in one volume of 1219 pages.

The first half of the book after general considerations, is devoted to static electricity, dynamic electricity, the physiological effects of electricity, electro-diagnosis and ionic medication by electrolysis. The chapter on Electrotherapy has been enriched by the inclusion of several of Machado's tabular classifications of electric methods, effects and uses. Nearly 200 pages are devoted to the subject of electricity in diseases of the nervous system and high frequency currents. Following a description of the phenomena accompanying the transmission of electricity through gases and through a vacuum the author presents the subjects of X-ray fluoroscopy, radiography and rœntgenotherapy in a most thorough manner. Radium, radioactivity and radium therapy, though last discussed, are not less taken care of. These last two sections cover over 500 pages of text. The new articles which deserve particular note are on diatherms, sinusoidal currents, radiography with intensifying screens, the Coolidge tubes and the author's method of X-ray dosage. There are 798 illustrations throughout the text, 16 in colors.

Enough has been pointed out to show the large scope of this work which, with the aid of its complete index is bound to remain for a long time the best work of reference on these subjects at our command. L. L. CAZENAVETTE.

Nervous and Mental Diseases. By Archibald Church, M. D., and Frederick Peterson, M. D. Eighth Edition, thoroughly revised. W. B. Saunders Company, Philadelphia and London.

Church and Peterson on Nervous and Mental Diseases have been before the profession for a number of years and therefore need no

introduction here. This the eighth edition of this popular work is not found wanting. It has furnished the opportunity for a few necessary changes to meet the constant advances in this broad field. For instance, the subject of syphilis of the nervous system is found to meet the recent advances and discoveries in this branch. The importance of spinal fluid investigations in various organic diseases of the brain and cord is referred to when the occasion demands throughout the text. Again the relation of glands of internal secretions to nervous disorders has of late years come prominently to the fore and such facts as have become of established importance are found throughout the text.

This new edition will no doubt increase the popularity of the work, which can always be consulted with benefit by specialist and practitioners.

CAZENAVETTE.

A Text Book of Pathology. By Alfred Stengel, M. D., and Herbert Fox, M. D. W. B. Saunders Company, Philadelphia and London, 1915.

To those students of pathology already familiar with Stengel's former exhaustive work concerning the etiology of disease, pathological anatomy, both gross and microscopical, as well as pathological anatomy, this new edition with the co-operation of Dr. Herbert Fox needs but little introduction. In this sixth edition the sections on Inflammation, Retrogressive Processes, Disorders of Nutrition and Metabolism, General Etiology and Diseases due to Bacteria have been largely rewritten. Sections on the Glands of Internal Secretion and Transmissible Diseases have been added in place of the former disproportionately long chapter on the Nervous System. Over one hundred new illustrations in black and white have been added, as well as many fine colored plates. The colored plates by Chase are exceptionally illustrative.

Considered as a "text book" of pathology this present edition is entirely too large. The sections on inflammation and regeneration are full and detailed, but the very important sections on retrogressive and progressive tissue changes are treated in too general a way for the undergraduate student to grasp readily. The variations in growth of usual tumor masses incident to the varying regional distributions are not discussed in enough detail.

In covering the entire subject as much space has been allotted to the rarer manifestations of disease as is given to the various infectious neoplasms and inflammations commonly met with, and which assume more prominence on account of the frequency with which they are encountered. This is especially noticeable in a text for use in our southern states, and is exemplified in this instance by the brevity with which such diseases as gonorrhea, amebic dysentery, leprosy, syphilis, pellagra and malaria are dealt with.

F. M. JOHNS.

Publications Received

W. B. SAUNDERS COMPANY. Philadelphia and London, 1915 and 1916.

A Text-Book of the Practice of Medicine, by James M. Anders, Ph. D., LL. D. Twelfth edition, thoroughly revised.

The Treatment of Acute Infectious Diseases, by Frank Sherman Meara, M. D., Ph. D.

Post-Mortem Examinations, by William S. Wadsworth, M. D.

Bandaging, by A. D. Whiting, M. D.

Practical Cystoscopy, by Paul M. Pilcher, A. M., M. D. Second edition, thoroughly revised.

The Medical Clinics of Chicago, January, 1916, Volume 1, Number 4.

Bone-Graft Surgery, by Fred H. Albee, A. B., M. D., F. A. C. S.

A Text-Book of Physiology, by William H. Howell, Ph. D., M. D., Sc. D., LL. D. Sixth edition, thoroughly revised.

The American Illustrated Medical Dictionary, by W. A. Newman Dorland, A. M., M. D., F. A. C. S. Eighth edition, revised and enlarged.

LEA AND FEBIGER. Philadelphia and New York, 1916.

A Treatise on the Principles and Practice of Medicine, by Arthur R. Edwards, A. M., M. D. Third edition, thoroughly revised and rewritten.

The Pratice of Obstetrics, by Edwin Bradford Gragin, A. B., A. M., M. D.

An Autobiography, by Edward Livingston Trudeau, M. D.

WILLIAM WOOD AND COMPANY. New York, 1915.

Urgent Surgery, by Felix Lejars, translated from the seventh French edition by William S. Dickie, F. R. C. S., and Ernest Ward, M. A., M. D., F. R. C. S. Third English impression.

THE YEAR BOOK PUBLISHERS. Chicago, 1915.

The Practical Medicine Series. Volume IX: **Skin and Venereal Diseases,** edited by Oliver S. Ormsby, with the collaboration of James Herbert Mitchell, M. D. Volume X: **Nervous and Mental Diseases,** edited by Hugh T. Patrick, M. D., and Peter Bassoe, M. D.

COLUMBIA UNIVERSITY PRESS. New York, 1915.

Harvey's Views on the Circulation of the Blood, by John G. Curtis, M. D., LL. D.

THE MACMILLAN COMPANY. New York, 1916.

The Aftermath of Battle, by Edward D. Toland, with a preface by Owen Wister.

REBMAN COMPANY. New York, 1916.

A Textbook of Nervous Diseases, by Robert Bing. Only authorized translation by Charles L. Allen, M. D.

FORBES AND COMPANY. Chicago, 1916.

Painless Childbirth, Eutocia and Nitrous Oxid-Analgesia, by Carl Henry Davis, A. B., M. D.

SURGERY PUBLISHING COMPANY. New York, 1916.

Surgical Operations with Local Anesthesia, by Arthur E. Hertzler, M. D. Second edition.

WASHINGTON GOVERNMENT PRINTING OFFICE. Washington, D. C., 1916.

Public Health Reports. Volume 31, Numbers 1, 2, 3, 4, 5.

Report of the Department of Health of the Panama Canal for the month of November, 1915.

Report on the Medico-Military Aspects of the European War, by Surgeon A. M. Fauntleroy, U. S. N.

Public Health Administration in Richmond, Indiana, by J. C. Perry, U. S. P. H.

MISCELLANEOUS:

Forty-seventh Annual Report of the Secretary of State on the Registration of Births and Deaths, Marriages and Divorces in Michigan for the year 1913. (Wynkoop Hallenbeck Crawford Co., State Printers, Lansing, Mich., 1915).

The Institution Quarterly. Vol. VI. Springfield, Ill., December 31, 1916.

Transactions of the American Pediatric Society. Volume XXVII. Lakewood, N. J., May 4-26, 1915.

Reprints

Range Extension of Ceanothus Sanguineus, by Oliver A. Farwell.

Report of the Commission on Cancer, by Jonathan M. Wainwright, M. D.

Some Practical Points in Eye-Work; Torticollis Relieved by Tenotomy of the Inferior Oblique; Anomalies of the Accommodation Clinically Considered, by Alexander Duane, M. D.

The Glands of Internal Secretion and their Importance as Therapeutic Agents, by Carey Pratt McCord.

What is the Best End-Point of the Reaction in the Frog-Heart Method of Digitalis Assay? by H. C. Hamilton and L. W. Rowe.

Inoculation Experiment with Pure Culture of Spirochaeta Hyos, by Walter E. King and Raymond H. Drake.

The Histogenesis of the Reproductive Processes in Mammals, by Henry O. Marcy, A. M., M. D., LL. D.

The Internal Secretions—Some Clinical Aspects Illustrated; Plastic Surgery—Corrective and Palliative Repair—in the Treatment of Malignant Disease; The Cure of the "Incurable," a Plea for More Accurate Diagnosis and More Careful Prognosis in Malignant Disease, by William Seaman Bainbridge, A. M., Sc. D., M. D., C. M.

MORTUARY REPORT OF NEW ORLEANS.

Computed from the Monthly Report of the Board of Health of the City of New Orleans for January, 1916.

Cause.	White	Colored	Total
Typhoid Fever	1	4	5
Intermittent Fever (Malarial Cachexia)	.....	1	1
Smallpox	.....	.....	....
Measles	.....	.....	....
Scarlet Fever	.....	.....	....
Whooping Cough	.....	.....	....
Diphtheria and Croup	3	.....	3
Influenza	17	9	26
Cholera Nostras	.....	.....	....
Pyemia and Septicemia	.....	.....	....
Tuberculosis	39	40	79
Syphilis	.....	1	1
Cancer	19	10	29
Rheumatism and Gout	.....	1	1
Diabetes	.	.....	4
Alcoholism	.....	.....	....
Encephalitis and Meningitis	2	2	4
Locomotor Ataxia	.....	.....	....
Congestion, Hemorrhage and Softening of Brain	16	8	24
Paralysis	1	1	2
Convulsions of Infancy	.....	.....	....
Other Diseases of Infancy	12	8	20
Tetanus	.....	.....	....
Other Nervous Diseases	2	.....	2
Heart Diseases	61	51	112
Bronchitis	4	1	5
Pneumonia and Broncho-Pneumonia	19	29	48
Other Respiratory Diseases	2	1	3
Ulcer of Stomach	1	2	3
Other Diseases of the Stomach	1	3	4
Diarrhea, Dysentery and Enteritis	17	8	25
Hernia, Intestinal Obstruction	3	3	6
Cirrhosis of Liver	10	4	14
Other Diseases of the Liver	5	3	8
Simple Peritonitis	1	1	2
Appendicitis	2	1	3
Bright's Disease	19	21	40
Other Genito-Urinary Diseases	10	6	16
Puerperal Diseases	4	2	6
Senile Debility	2	1	3
Suicide	5	.....	5
Injuries	26	22	48
All Other Causes	8	5	13
Total	316	249	565

Still-born Children—White, 17; colored, 17. Total, 34.

Population of City (estimated)—White, 276,000; colored, 102,000. Total, 378,000.

Death Rate per 1000 per Annum for Month—White, 13.74; colored, 29.29. Total, 17.94. Non-residents excluded, 16.09.

METEOROLOGICAL SUMMARY (U. S. Weather Bureau).

Mean atmospheric pressure 30.18

Mean temperature ..... 61.

Total precipitation ..... 4.46 inches

Prevailing direction of wind, southeast.